



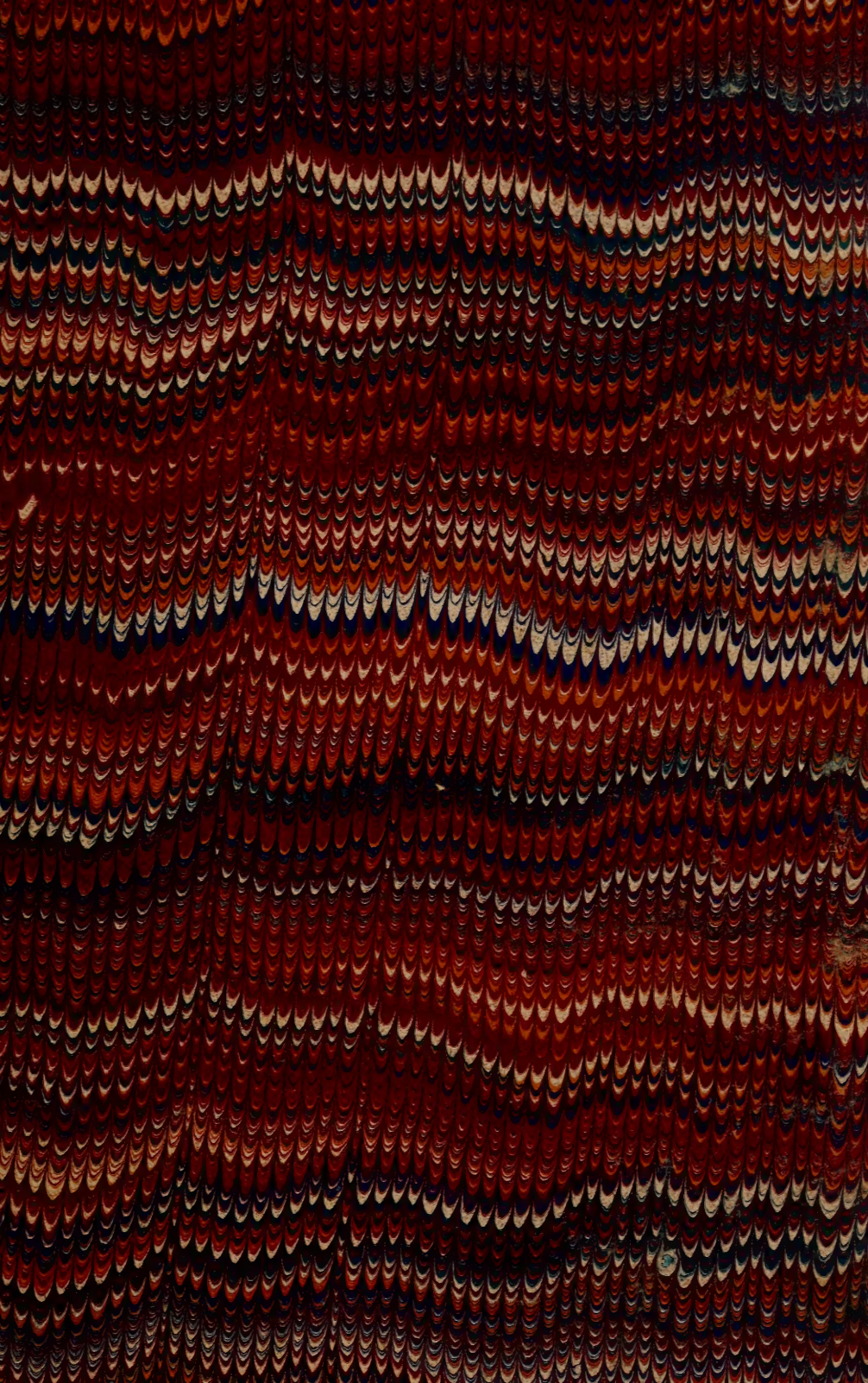
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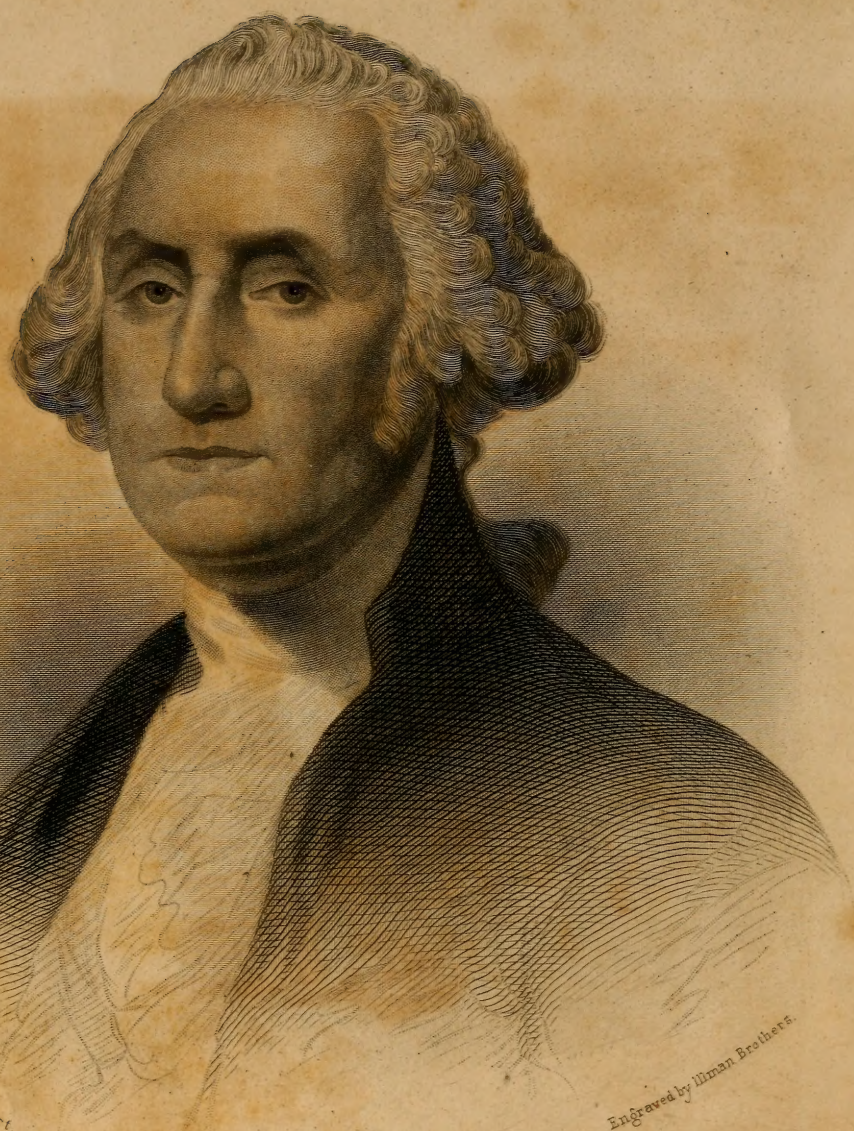












Painted by Stuart

Engraved by Willman Brothers

George Washington

Taken from life in 1794

FROM THE ART GALLERY-CENTENNIAL EXHIBITION



J. TRUMBULL, PINX.

THE DECLARATION OF INDEPENDENCE.

W. GILBERT, SCULPT.

THE ILLUSTRATED HISTORY
OF THE
CENTENNIAL EXHIBITION,

HELD IN COMMEMORATION
OF
THE ONE HUNDREDTH ANNIVERSARY
OF
AMERICAN INDEPENDENCE.

WITH A FULL DESCRIPTION OF
THE GREAT BUILDINGS AND ALL THE OBJECTS OF
INTEREST EXHIBITED IN THEM,

EMBRACING ALSO

A Concise History of the Origin and Success of the Exhibition, and Biographies of the
Leading Members of the Centennial Commission,

TO WHICH IS ADDED

A COMPLETE DESCRIPTION OF THE CITY OF PHILADELPHIA.

BY JAMES D. McCABE,

AUTHOR OF THE "CENTENNIAL HISTORY OF THE UNITED STATES,"
"PATHWAYS OF THE HOLY LAND," ETC., ETC.

EMBELLISHED WITH OVER 300 FINE ENGRAVINGS OF BUILDINGS AND SCENES
IN THE GREAT EXHIBITION.

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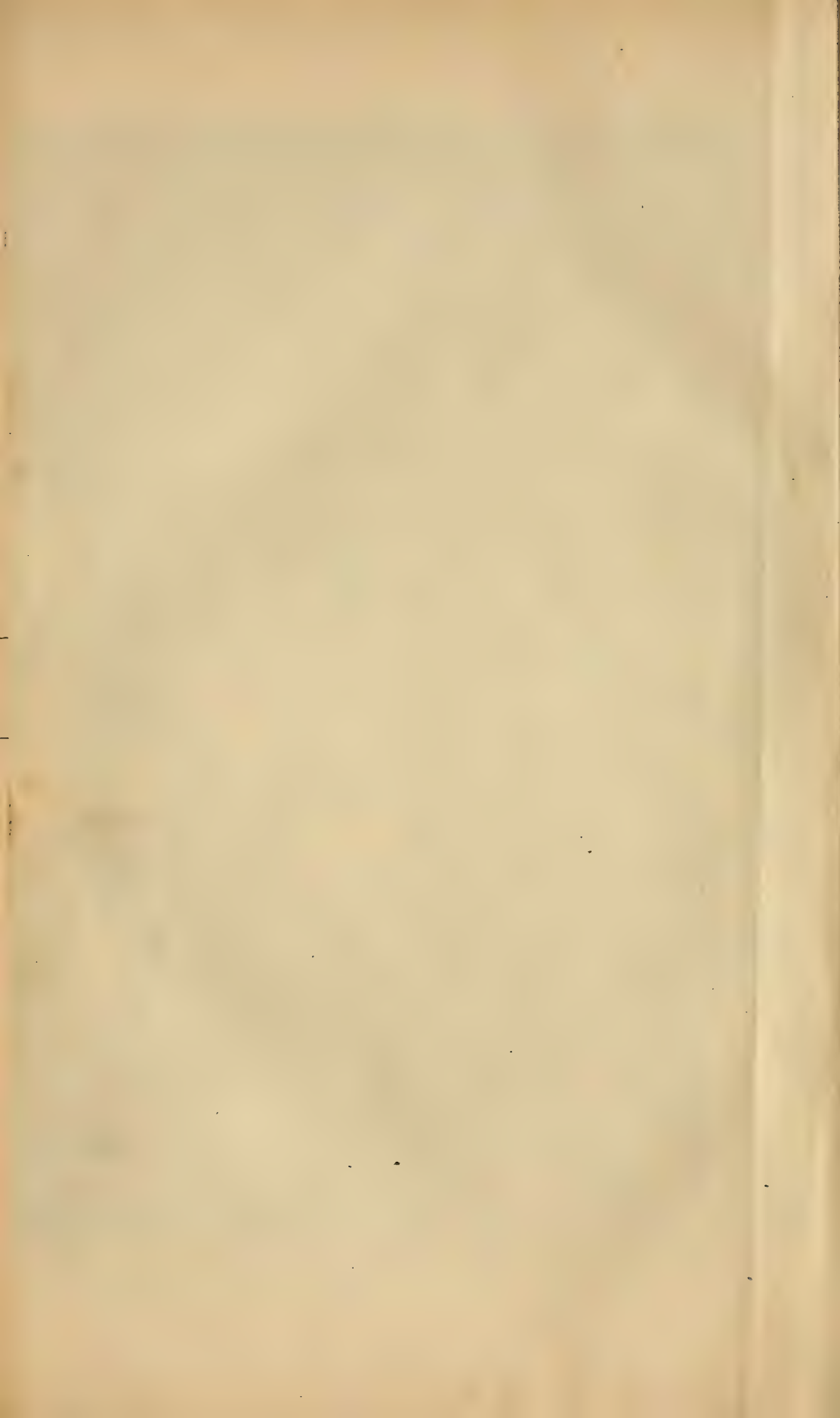
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VIEW IN THE MAIN BUILDING, SHOWING THE SPANISH, EGYPTIAN AND DANISH COURTS.



P R E F A C E.

THE close of the first century of American Independence naturally called for some extraordinary and imposing commemoration of the great event; and when it was proposed to celebrate it by an International Exhibition, in which the American Republic should display to the world the triumphs it has achieved in the noble arts of peace during its first century of national existence, and in which these triumphs should be compared in friendly rivalry with those of other and older nations, there was a general and cordial response of approval from the entire country. Out of this sentiment the International Centennial Exhibition was born. Foreign nations entered cordially into the competition to which they were invited, and the enterprise was carried forward to completion with the most gratifying energy and promptness.

The International Centennial Exhibition was a grand success. It surmounted its early difficulties and delighted its friends and silenced its enemies by the beauty and grandeur of its proportions, and by its

positive and overwhelming success as compared with the previous great Exhibitions of the world.

It is a success of which the American people have especial cause to be proud, for it was entirely their work. The great International Exhibitions of Europe were the work of the governments of the countries in which they were held, and were fostered with the greatest care, and every resource of the state was placed at their disposal to insure success. The Centennial Exhibition, on the contrary, was viewed with disfavor by the American Government, which withheld its aid until the indignant remonstrances of the people forced it to come forward and do its share in the work. The Centennial Exhibition was thus the work of the people of the United States, conceived by them, carried forward to its close by them, and made by them the grandest success of the century.

The deepest interest was manifested by all classes of our people in their beautiful Exhibition. Thousands came from all parts of the Union, and yet other thousands from abroad, to visit the great Exhibition, and all these went away with the acknowledgment that, great as their expectations were, they were more than realized.

Believing that such would be the interest of the American people in the Exhibition, the author began at an early day the preparation of this work, in which he has sought to present to the reader not only the history of the great enterprise, from its inception down

to its close, but at the same time to give to him a life-like picture of the Exhibition and its varied sights and attractions. Apart from his other labors, he visited every portion of the Exhibition in person, note-book in hand, and has endeavored to record faithfully and accurately the various features and incidents of the great fair which seem to him most likely to give the reader a correct idea of it. He ventures to hope that he has succeeded in this task, and that the work will be found of use and interest by those who visited the Exhibition and saw for themselves the beautiful and instructive display described herein, as well as by the thousands who could not enjoy this privilege. These latter know the Exhibition only by the reports that reach them through their friends and the newspapers. For their benefit chiefly the author has written these pages, in which he has endeavored to enable them to become familiar with the Exhibition without either the expense or trouble attendant upon a visit to it. It is believed that those who visited the Exhibition will find a perusal of these pages of benefit to them. The Exhibition was a world within itself, and the visitor entering its portals was plunged at once into the midst of so much that was beautiful, novel, and attractive that he was bewildered. A thorough study of this eighth wonder of the world through the medium of some systematic and carefully prepared account of it cannot fail to be of great benefit to the

intelligent visitor. Such a means of study is offered him in this work.

Those who saw the Exhibition will, it is believed, admit the truthfulness of the picture herein presented, whatever they may think of the manner in which the work is executed.

The engravings in this work have been prepared especially for it, and at great expense. It is sufficient to say that they were engraved by Messrs. Van Ingen & Snyder, Philadelphia, Harper & Bros., New York, and other well-known houses.

JAS. D. McCABE.

PHILADELPHIA,

December 4th, 1876.

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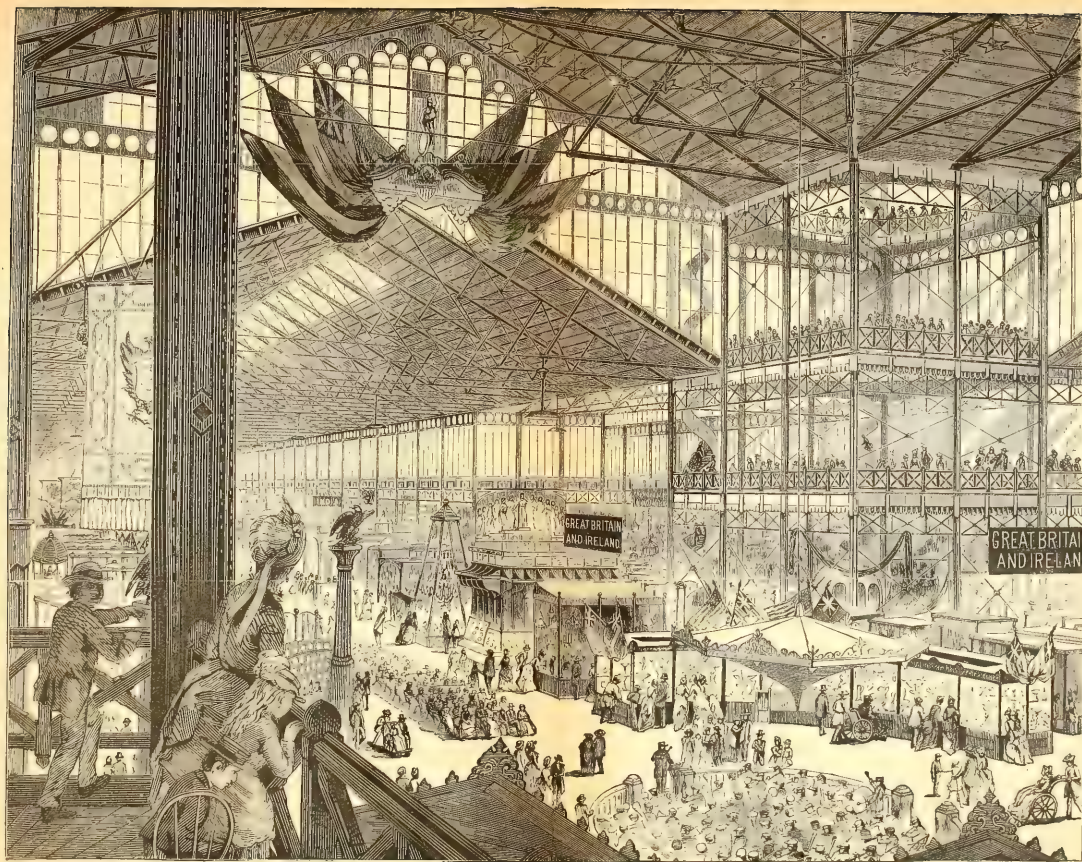
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JAS. D. McCABE.

PHILADELPHIA,

December 4th, 1876.



THE CENTRAL AISLE OF THE MAIN EXHIBITION BUILDING.

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by VAN INGEN & SNYDER
706 CHESTNUT ST. PHILAD^A

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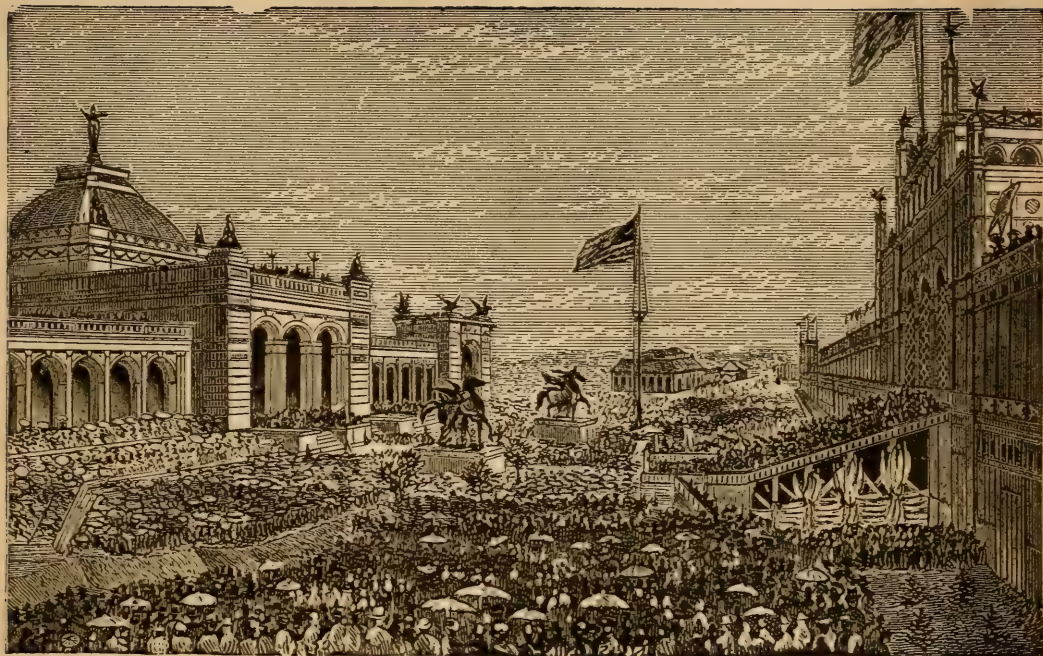
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GENERAL VIEW OF THE INTERIOR OF MACHINERY HALL.



THE HYDRAULIC BASIN, IN MACHINERY HALL.

VAN INGEN-SNYDER

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THE ILLUSTRATED HISTORY OF THE CENTENNIAL EXHIBITION.

CHAPTER I.

THE CITY OF PHILADELPHIA.—HISTORICAL.

Founding of Philadelphia by William Penn—His Treaty with the Indians—Original Plan of the City—Growth of the City—The Revolution—Occupation by the British—Commercial Prosperity of Philadelphia—Its Banking Interests—Consolidation of the Suburbs with the City—The Centennial Census—Population of Philadelphia.

WHEN it was proposed to celebrate the close of the first century of the independence of the United States by an International Exposition, it was admitted that the proper place for the holding of such an exhibition was the city of Philadelphia, in which occurred the decisive event which placed the United States among the nations of the world, and which the exhibition is designed to commemorate. Before proceeding to speak of the exhibition, it will be best to introduce the reader to the great city in which it is held.

The city of Philadelphia, in the county of the same name, is the metropolis of the State of Pennsylvania. It is the second city in the Union, and is classed as the sixth great city of the world.

The city of Philadelphia was founded by William Penn

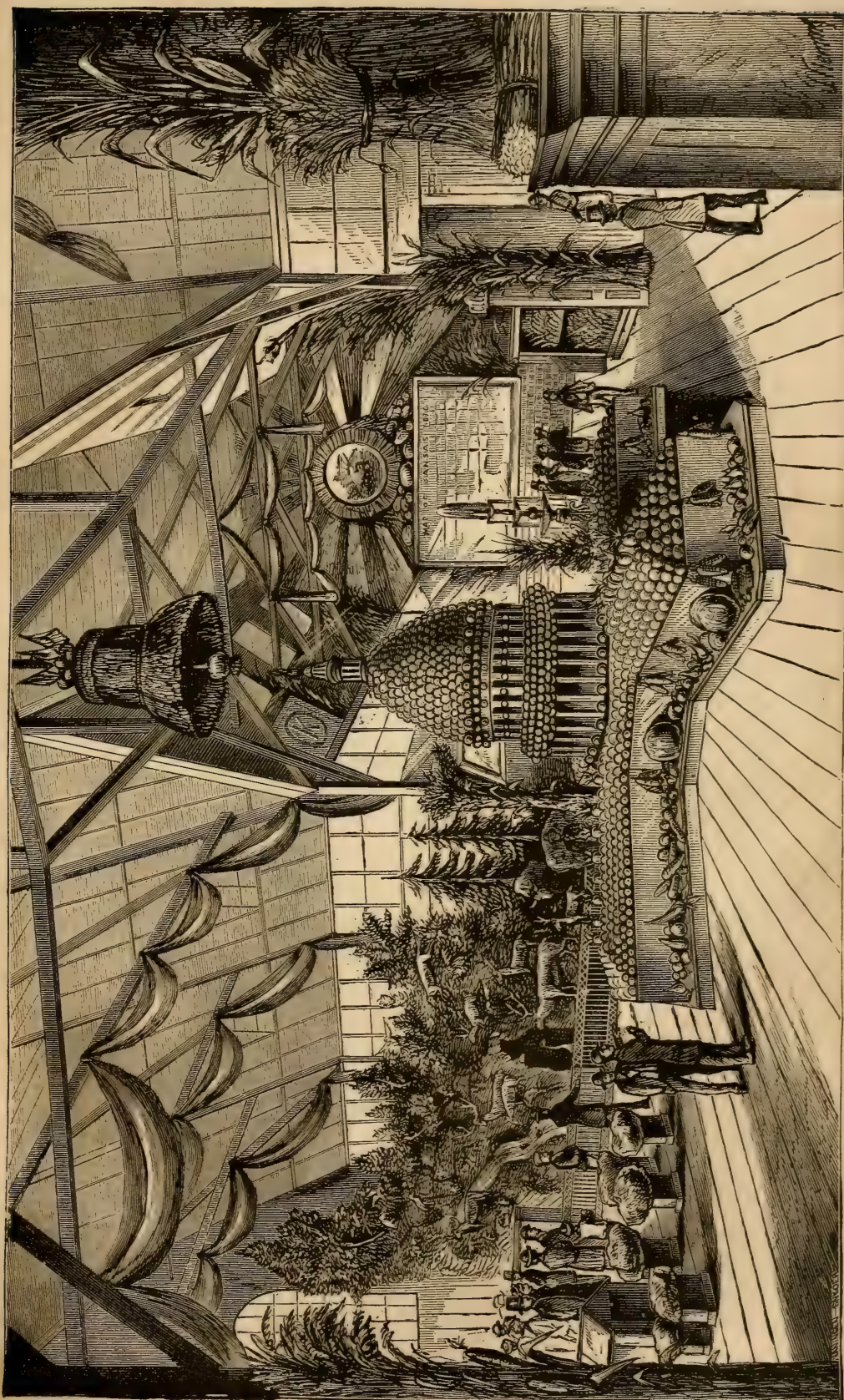
immediately after taking possession of the province of Pennsylvania granted to him by Charles II. He sent over a body of colonists in August, 1681, and in 1682 came over himself and superintended the surveys of the new city. The land was chosen by him because, he declared, "It seemed appointed for a town, because of its coves, docks, springs, and lofty land." All these features have long since disappeared before the rapid



WILLIAM PENN.

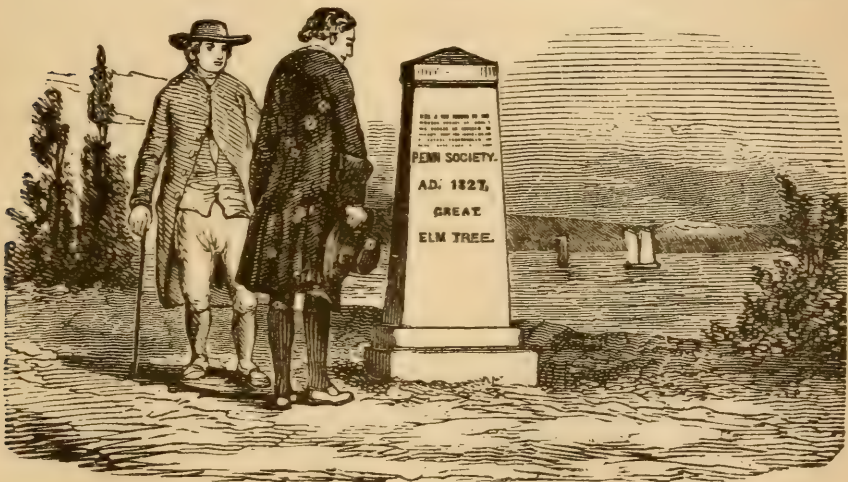
growth of his city. During the year 1682 a large number of colonists arrived, the majority of whom were Friends or Quakers, and persons of respectability and wealth.

The place at which William Penn first set foot on the soil of his new city was long known as the "Blue Anchor Landing," from a tavern of that name, the first house built within the limits of the city. A little later, under a spreading elm at



INTERIOR VIEW OF THE KANSAS AND COLORADO BUILDING.

Shackamaxon, now Kensington, Penn met the chiefs of the neighboring Indian tribes, and entered into a treaty of peace and friendship with them. This treaty was confirmed by no oath, but it remained unbroken for fifty years, and as neither side sought to evade its obligations, which were simply of peace and good will, the colony of Pennsylvania escaped in its earlier years the horrors of a savage warfare from which the other settlers suffered. "We will live," said the Indian sachems, "in love with William Penn and his children as long as the moon and the sun shall endure." They kept their word. "Penn came without arms; he declared his purpose to abstain



PENN'S TREATY MONUMENT.

from violence; he had no message but peace; and not a drop of Quaker blood was ever shed by an Indian."

The venerable elm tree which witnessed "the only treaty ever ratified without an oath, and the only one never broken," stood unharmed until 1810, when it was blown down by a furious gale. Its site is now marked by a small obelisk of granite, which stands on the east side of Beach street, a few steps north of Hanover. The Second and Third street cars will convey the visitor to Hanover street, from which he will have but a square to walk; but the monument is so surrounded by piles of stone and lumber that it will require a sharp eye to detect it.

On the pleasant tract lying between the Delaware and the

Schuylkill, which was purchased from the Swedes, who had on their part purchased it from the Indians, Penn in 1683 laid out the capital of his province, which he named PHILADELPHIA, the city of Brotherly Love, in token of the principles which he meant should constitute the common law of his possessions. It was abundantly supplied with streams of pure water, and was admirably situated for purposes of trade. He did not wish it to be built after the manner of European cities, but designed it to be a "greene country town, gardens round each house, that it might never be burned, and always be wholesome." The streets were laid off by marking their course through the primitive forest by blazing the trees, and the building of dwellings was begun. In the first year of Penn's arrival in the colony, twenty-three ships with emigrants arrived in Pennsylvania. In three years after its foundation Philadelphia contained upwards of six hundred houses. The Indians proved the firm friends of the colonists, and supplied them with wild fowl and venison in return for articles of European manufacture.

The original plan of the city was a parallelogram, two miles long, from the Delaware to the Schuylkill, by one mile wide. It contained nine streets, running from river to river, crossed by twenty-one running north and south. A grand square of ten acres was laid off in the heart of the city, and in each of the four quarters was a square of eight acres, all for pleasure grounds and promenades. In the main the original plan is still adhered to.

The streets running from river to river, with the exception of High street, were named after the native forest trees. They were called Vine, Sassafras, Mulberry, High, Chestnut, Walnut, Spruce, Pine, and Cedar. Nearly all of these names remain. Sassafras is now called Race; Mulberry is Arch; High is Market; and Cedar is South street. The streets intersecting these were numbered.

Philadelphia grew rapidly, and by the early part of the eighteenth century was the largest and most flourishing city in America. Its commerce was important, and it increased steadily in wealth.

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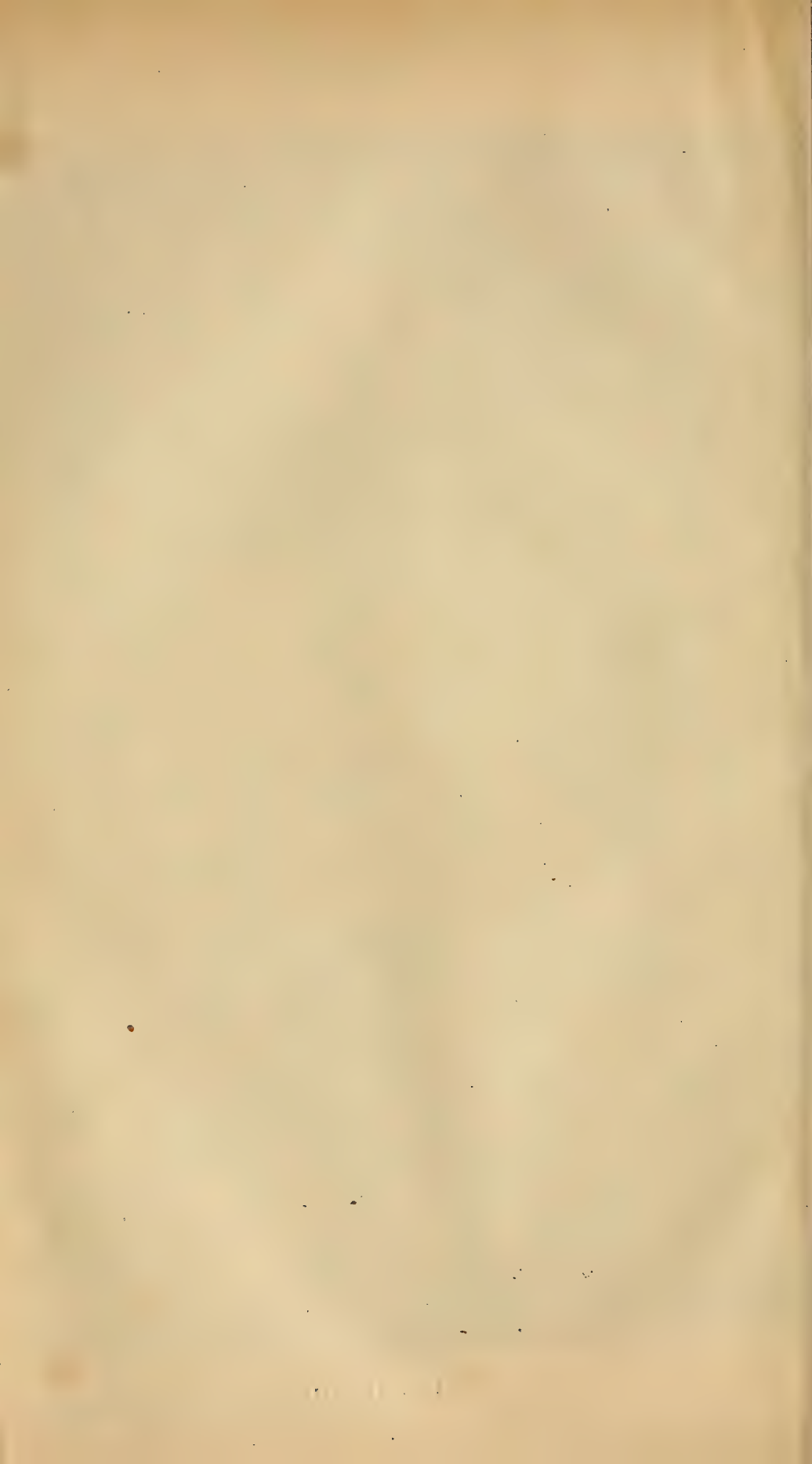
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VIEW IN AGRICULTURAL HALL, SHOWING THE BRAZILIAN EXHIBITS.



"In 1711 the city was divided into ten wards. In December, 1719, a printing press was set up, and Andrew Bradford began to publish the *American Weekly Mercury*, which was continued until 1746. In 1728 the *Gazette* was begun, which fell to Franklin to conduct in 1729. In the latter year the building of a State House was authorized, the site was selected in 1730, and the building begun in 1732, and completed in 1735. The bell tower was not erected until 1750, and on June 7th, 1753, the new 'great bell,' cast here, weighing 2080 pounds, with the motto, 'Proclaim liberty throughout all the land, unto all the inhabitants thereof,' was raised to its place. This is the bell celebrated in connection with the Declaration of Independence,



PENN LAYING OUT THE PLAN OF PHILADELPHIA.

and now in Independence Hall. The first Colonial Congress met in Philadelphia at Carpenter's Hall, a building still in use as a hall, September 4th, 1774. Congress held its sessions at the State House in 1776, and here adopted and signed the Declaration of Independence. The British forces occupied the city from September, 1777, to June, 1778."

During the British occupation a census of the city was taken by order of Lord Cornwallis, and showed a population of 21,767 inhabitants and 5470 houses. After the evacuation of the city by the enemy, Congress resumed its sessions at the State House, which remained the seat of government of the Union until the close of the war. The Convention which framed the Constitution of the United States met in Philadelphia in 1787, and that

great instrument was adopted in the same building that had witnessed the signing of the Declaration of Independence. Upon the inauguration of the Federal government, the national capital was removed to New York, but in 1790 was restored to Philadelphia, which remained the seat of government until 1800, when the new city of Washington became the capital. In 1800 Philadelphia also ceased to be the capital of the State, which was located at Harrisburg.

The foreign commerce of Philadelphia grew with great rapidity between the close of the Revolution and the year 1812. The second war with England almost destroyed this commerce, which did not return with the peace of 1815, and the completion of the Erie canal a few years after the close of the war, gave to New York an advantage which reduced Philadelphia to a secondary place in our foreign trade.

“Previous to 1839, the banking capital of Philadelphia was large, and for the most of the period previous to 1836, it was the monetary centre of the country. The first Bank of the United States, established by Act of Congress, in 1791, with a capital of \$10,000,000, was located here, and the second Bank of the United States was established here in 1816, with a capital of \$35,000,000. The subsequent failure of the bank under its State charter in 1839, and the loss of its large capital, greatly weakened the financial strength of the city, and the monetary centre was permanently transferred to New York. The revulsion of 1837, and the subsequent financial depression, fell heavily on the city and State, the recovery from them not being apparent until 1844.”

The city retained its original limits until 1854. In the meantime the thriving suburbs of Kensington, Germantown, West Philadelphia, Northern Liberties, Spring Garden, Richmond, Penn, Southwark, Moyamensing, and Passyunk, had sprung up around it, making in the aggregate a city much larger than the parent town, and causing no little confusion and trouble by the number of adjacent and independent municipal jurisdictions. In 1854 the State Legislature consolidated the parent town and all its suburbs in one city under the general name of

Philadelphia. By the same enactment the corporate limits of the city were made to embrace the entire county of Philadelphia.




MONKEY HOUSE, ZOOLOGICAL GARDENS.

Since the consolidation the city has grown with marked rapidity. In 1860 the population was 565,529; in 1870, 674,022; and by the municipal census of the 1st of April, 1876, was 817,448, showing an increase of $21\frac{1}{4}$ per cent. in the six years that have elapsed since the last Federal census.

CHAPTER II.

PHILADELPHIA IN 1876.

Location of Philadelphia—Size of the City—Its Regularity—Materials used in Building the Houses—"The City of Homes"—Philadelphia Houses—Mr. Kortwright's Statistics—The Public Squares—Market Street—The House in which the Declaration of Independence was written—The National Publishing Company's Building—Second Street—Christ Church—Chestnut Street—A Splendid Thoroughfare—Carpenter's Hall—The Continental Congress—The First Prayer in Congress—The Custom House—The Post-Office—Independence Hall—The Fashionable Promenade—Noted Buildings—The Hotels—The Continental—The United States Mint—Walnut Street—The Merchants' Exchange—The Commercial Exchange—An Interesting Site—Pennsylvania and Philadelphia & Reading Railroad Buildings—Offices of the Centennial Commission—The Abode of Wealth and Fashion—Arch Street—The Grave of Franklin—Handsome Churches—Broad Street—The Baltimore Depot—Pennsylvania Institution for the Deaf and Dumb—Academy of Music—The Colosseum—Union League Club House—The Public Buildings—The Masonic Temple—Academy of Fine Arts—Reading Railroad Depot—Third Street—The Financial Centre—The Girard Bank—Old Churches.

HE city of Philadelphia lies between the Delaware and Schuylkill rivers, at a distance of nearly one hundred miles from the Atlantic ocean, following the course of the Delaware bay and river. It is one hundred and thirty-six miles northeast of Washington City, and eighty-seven miles southwest of New York. The old city is located in a nearly level plain, elevated above the Delaware and Schuylkill, but the recent additions, especially those on the northwest, are built on a fine rolling country, which abounds in picturesque views that offer a striking contrast to the uniform flatness of the old city. The corporate limits cover an area of one hundred and twenty square miles. Its greatest length from north to south is twenty miles, and its greatest breadth from

CHAPTER II.

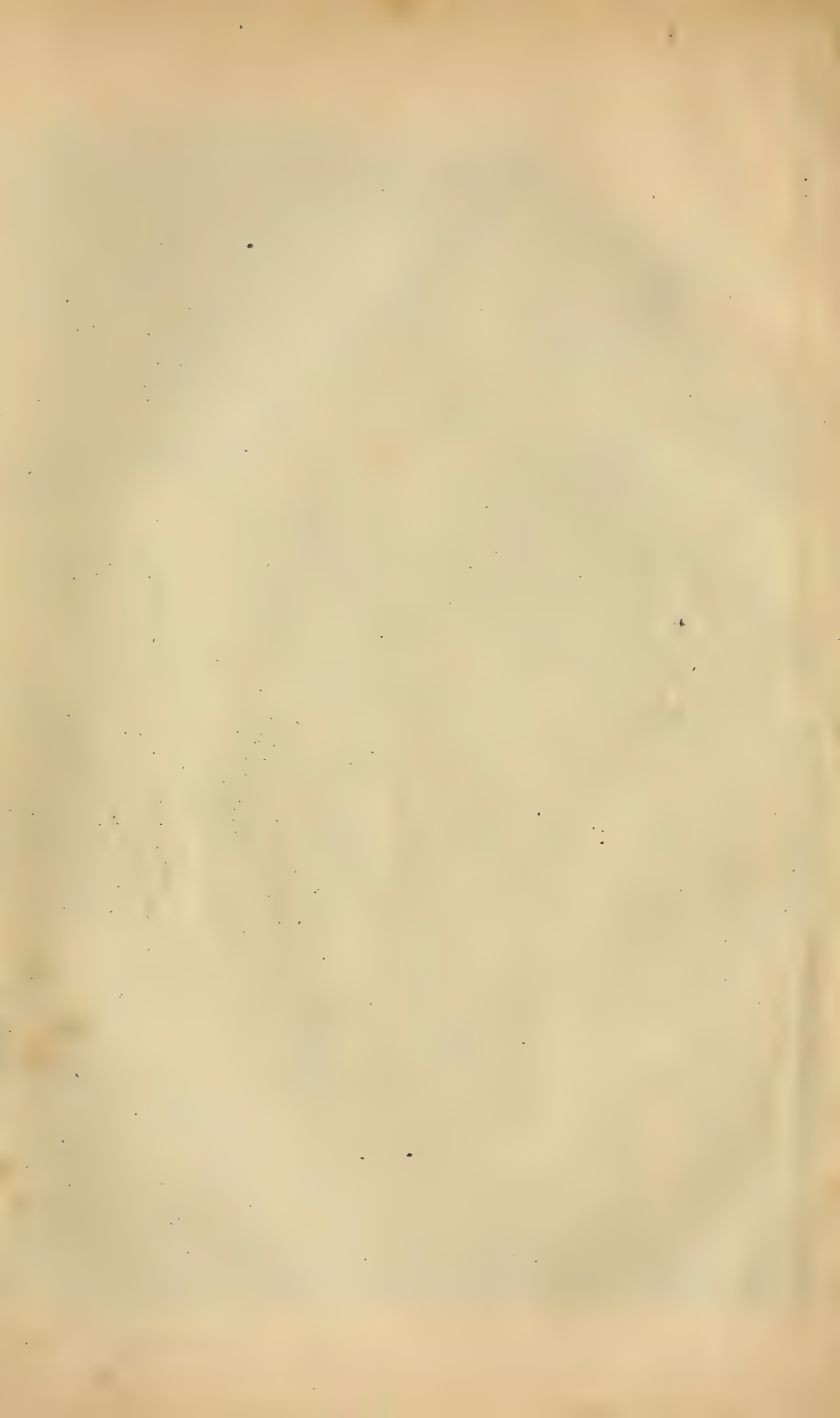
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SCENE IN THE ART GALLERY—CENTENNIAL EXHIBITION:



east to west, eight miles. The densely inhabited portion of the city covers an area of about nine square miles, extending for about five miles along the Delaware, and two miles along the Schuylkill. The greater part of the business of the city is transacted between Vine and Spruce streets, east of Twelfth street. The wealthiest private section, that inhabited by "the fashion," is south of Chestnut, and west of Seventh street. Walnut above Tenth is considered the most desirable street in the city, and contains many of the most costly and beautiful residences in the Union. Arch street above Broad, and Broad along its northern portion, are handsome residence streets. Market street is entirely devoted to business, and Chestnut street is the principal retail thoroughfare, and one of the handsomest streets in the Union.

The suburbs of Philadelphia are noted for their beauty, and are thickly built up with handsome country seats, villas, and cottages. They abound in exquisite scenery, especially in the vicinity of the Wissahickon.

Philadelphia is laid out with great regularity. As we have stated, the original plan of Penn contemplated a city of ten streets running from river to river, and crossed by twenty-five others at right angles. Broad and Market streets were to divide this city into four nearly equal portions, a considerable area being reserved at the intersection of these streets for a large public square. This was the famous Penn Square, now the site of the magnificent City Hall, in course of erection. The streets are usually from fifty to sixty-six feet in width, with a few of greater breadth. Those running from north to south are numbered, beginning at the Delaware river; those from east to west are named. In the older sections of the city the sewage is defective in consequence of the flatness of the land, but the higher portions have nothing to complain of in this respect. Considering its size and importance, Philadelphia is remarkably deficient in good pavements. The streets are generally paved with cobble stones, but Belgian and wooden pavements are now superseding these in the more important thoroughfares. The general aspect of the city is bright and pleasing, mingled with a certain degree of primness, due to its Quaker origin. Except



MARKET STREET BELOW SEVENTH.



ORNAMENTAL VASE AND FLOWERS, EXHIBITED IN MAIN BUILDING.

in those portions along the rivers it is clean and healthy. Market street divides it into two portions, called North and South. The houses are numbered according to a peculiar plan, one hundred numbers being assigned to each block or square. Thus 950 would be located between Ninth and Tenth streets. This system renders it easy to find a building in any part of the city between the numbered streets. The portion of the city lying beyond the Schuylkill still retains its old name of West

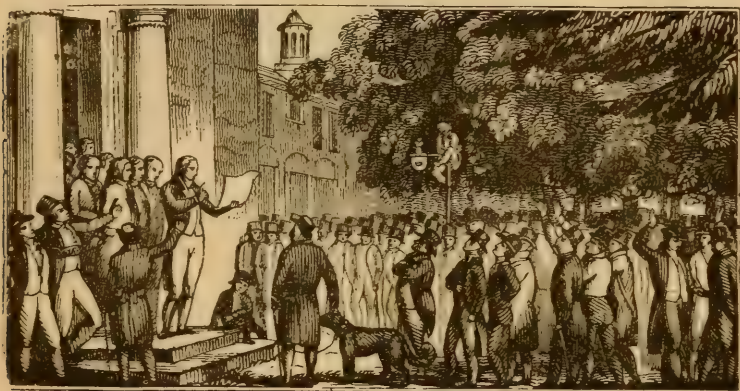


NINTH AND MARKET STREETS.

Philadelphia. It is in this section that the exhibition grounds are situated.

As a rule the city is built of brick, but of late years many edifices of brown and free stone, iron, and marble have been erected, which give to the city a more varied as well as a handsomer and more substantial appearance. Philadelphia is emphatically a "city of homes." Of its 140,000 buildings, 130,000 are dwelling-houses, a number greater than the whole

number of dwellings in Baltimore, St. Louis, Boston and Louisville in 1870. Of these 60,000 are the homes of mechanics. It is the boast of Philadelphia that her working classes are better housed, better fed, and better clothed than those of any city in the world. The expenses of living are moderate as compared with New York, Boston, Chicago, or St. Louis; Baltimore alone, of all the large cities of the Union, surpassing Philadelphia in cheapness of living. The houses of Philadelphia are as a rule constructed upon a uniform plan, and are admitted to be the best arranged internally of any dwellings in this country. They are generally three stories in height, with pressed brick fronts, and white marble steps and trimmings. They have solid white



DECLARATION OF INDEPENDENCE PROCLAIMED IN PHILADELPHIA.

wooden shutters which greatly disfigure them. On the first floor there is a wide hall, a parlor, dining-room, kitchen, and usually a summer kitchen. On the second floor are two chambers, a bath, and a sitting-room, and on the third floor, two spare chambers, and one or more servants' rooms. They are lighted with gas, heated by furnaces in the cellar, and supplied with hot and cold water. About six thousand new buildings are erected every year.

A year ago, Mr. Kortwright, the British Consul at Philadelphia, thus summed up the leading features of the city, in one of his official reports to his government:

"Philadelphia has a population of nearly 800,000, and it

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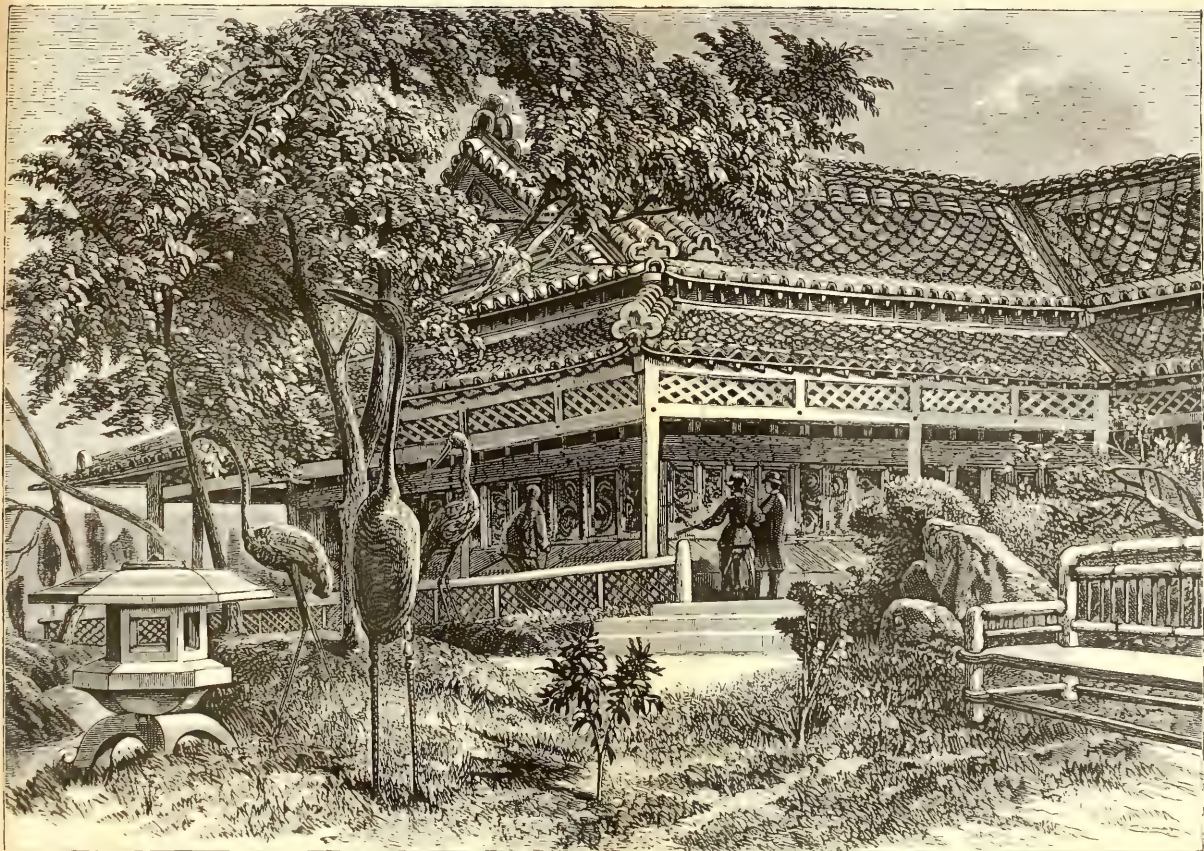


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THE JAPANESE BAZAAR—CENTENNIAL EXHIBITION.

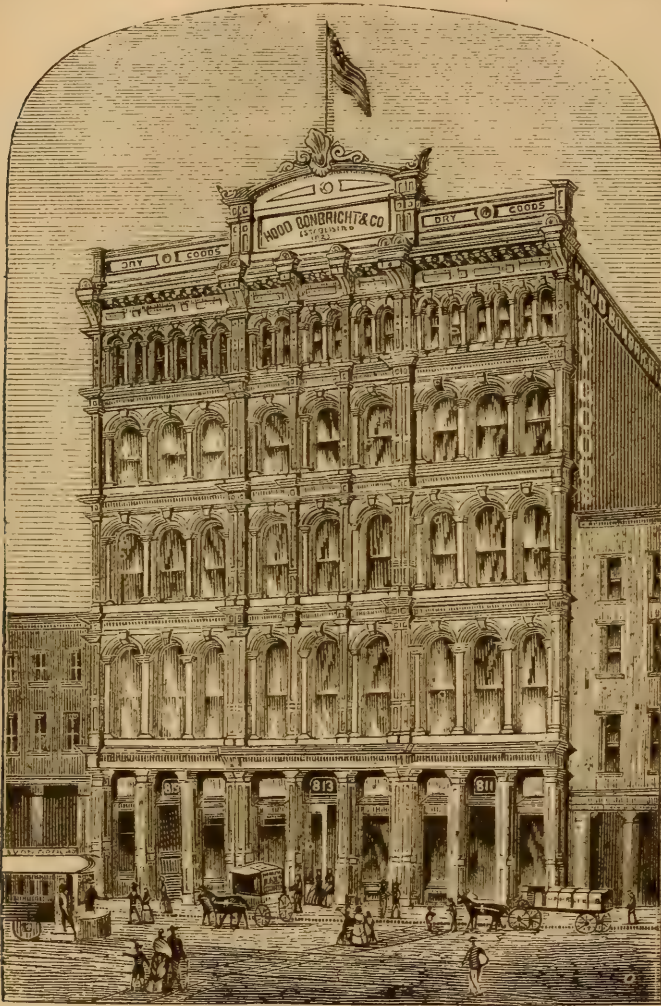
lives in an area of $129\frac{1}{8}$ square miles. The city has 1000 miles of streets and roads opened for use, and over 500 of these are paved. It is lighted by nearly 10,000 gas lamps. The earth beneath conceals and is penetrated by 134 miles of sewers, over 600 miles of gas mains, and 546 miles of water pipes. It has over 212 miles of city railways and nearly 1794 city railroad



LIPPINCOTT'S BUILDING.

cars passing over these railroads daily ; 3025 steam boilers ; over 400 public schools, with suitable buildings, and over 1600 school-teachers and over 80,000 pupils. It has over 34,000 bath-rooms, most of which are supplied with hot water, and for the use of the water at low rates the citizens pay more than a half million of dollars ; it has over 400 places of public worship, and accommodation in them for 300,000 persons ; it has nearly

9000 manufactories, with a capital of \$185,000,000, employing 145,000 hands, the annual product of whose labor is over 384,000,000. It exported in 1873 in value over \$24,000,000, and imported in value over \$26,000,000; the amount for duties in gold was nearly \$8,500,000; the real estate, as assessed for



MARKET STREET ABOVE EIGHTH.

taxation, was over \$458,000,000, and there was collected nearly \$9,000,000 for taxes."

Public Squares.

Penn's original plan, as we have said, contemplated a public square in each of the four quarters of the city. These still remain, and others have been added.



THE CHINESE COURT, IN THE MAIN BUILDING.



EXHIBIT OF GARDEN SEED, IN AGRICULTURAL HALL.

Independence Square, or, as it was formerly called, *The State House Yard*, lies immediately back of Independence Hall, extending back to Walnut street, and from Fifth to Sixth streets. It has been put in order for the centennial year, and is now a neat and tasteful ground. The lampposts recently set up at the entrances to the square are not only quite pretty, but appropriate also. On the base of the posts appear the names of the original thirteen States, and above them, on a part made in imitation of the Independence Bell, is the inscription, "Proclaim liberty throughout the land," etc. Each lamp, of very beautiful design, has four representations of the bell upon it, surrounded by thirteen stars. They add much to the appearance of the square.

Washington Square lies diagonally opposite Independence Square, and extends from Walnut almost back to Spruce street, and from Sixth to above Seventh street. It is shaded by fine old trees, and is a pleasant lounging-place in summer. This square was once a "Potter's field," and here were buried many soldiers who died from the small-pox, camp fever, and prison diseases of the Revolution.

Rittenhouse Square lies between Walnut and Locust streets, and extends from Eighteenth to above Nineteenth street. It is a handsome enclosure, provided with walks, seats, and a tasteful fountain, and is a favorite resort for the nurses and children of the aristocratic neighborhood in which it is located. It is surrounded by elegant and substantial dwellings, some of which are among the handsomest in the Union.

Logan Square lies between Race and Vine and between Eighteenth and Twentieth streets. It is the handsomest square in the city, and a favorite resort. In 1864 the great Sanitary Fair for the benefit of the Union army was held here. The entire square was roofed over and the ground covered with flooring. The trunks of the trees served as so many pillars for the roof, above which waved the branches of the trees.

Franklin Square lies between Race and Vine streets, and extends from Sixth to above Seventh street. It is a fine old square, the principal attraction of which lies in its fine old trees.

It was originally a burying-ground, and was used as such for many years.

Norris Square, in Kensington, and *Jefferson Square*, at Third street and Washington avenue, are very handsome. They are new; the first four named above constituting the squares designed by Penn.

The streets of Philadelphia are among the most attractive in the world, and the business streets have few equals.

Market Street.

Market street is the great thoroughfare of the city. It is the grand *entrepôt* of the domestic and foreign commerce of Phila-

delphia, and extends in an unbroken line from the Delaware to the Schuylkill, crosses that river, and continues its course to the city line. It was the High street of William Penn, and has always enjoyed the pre-eminence it now holds. It is one hundred feet wide, and is lined with magnificent warehouses from the Delaware almost to the Schuylkill. Some of these are superb edifices, built



CORNER OF MARKET AND SIXTH STREETS.

in the handsomest and most massive manner, and are provided with every convenience for the business transacted within them. Prominent among these are the splendid buildings occupied by the great publishing houses of Lippincott & Co., and Claxton, Remsen & Haffelfinger; the mammoth warehouse of Hood,

Bonbright & Co., dry-goods merchants; the vast clothing warehouse of John Wanamaker & Co., at Sixth and Market, on the site of the presidential mansion of Washington and Adams, perhaps the largest and most complete clothing establishment in the world. The *Bingham House*, at the corner of Market and Eleventh streets, is an excellent hotel, and a tasteful structure.

The great width of Market street allows an immense amount



BINGHAM HOUSE.

of traffic to be done upon it. In addition to the lines of the street railways, tracks are laid from West Philadelphia down the greater part of the street, connecting with the principal steam railway lines, and merchants are thus enabled to run the cars consigned to them directly into their warehouses. The various railways have branch depots, and the Adams Express Company has its main depot on this street.

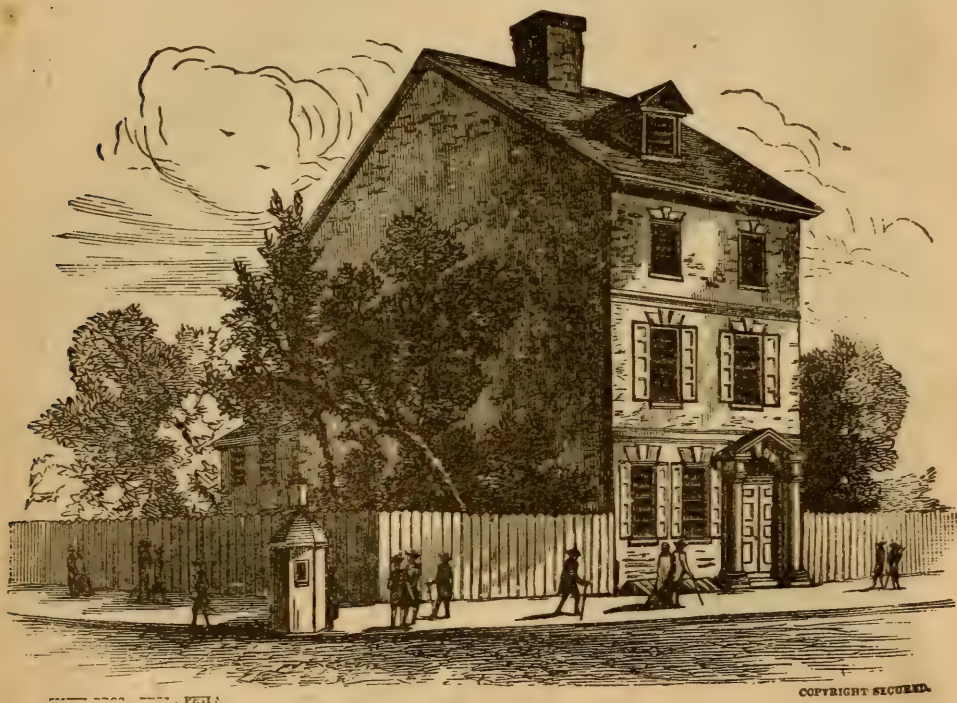
The scene on Market street is always bright and animated,

and viewed from any point at any hour of the day the street is thronged with an eager, hurrying crowd of vehicles and pedestrians.

Adjoining the southwest corner of Market and Seventh streets is a plain, modest-looking building of brick, now used as a business house. A stranger would pass it by a dozen times without notice, but it is among the most noted edifices in the city, and should be dear to every American heart. It is the

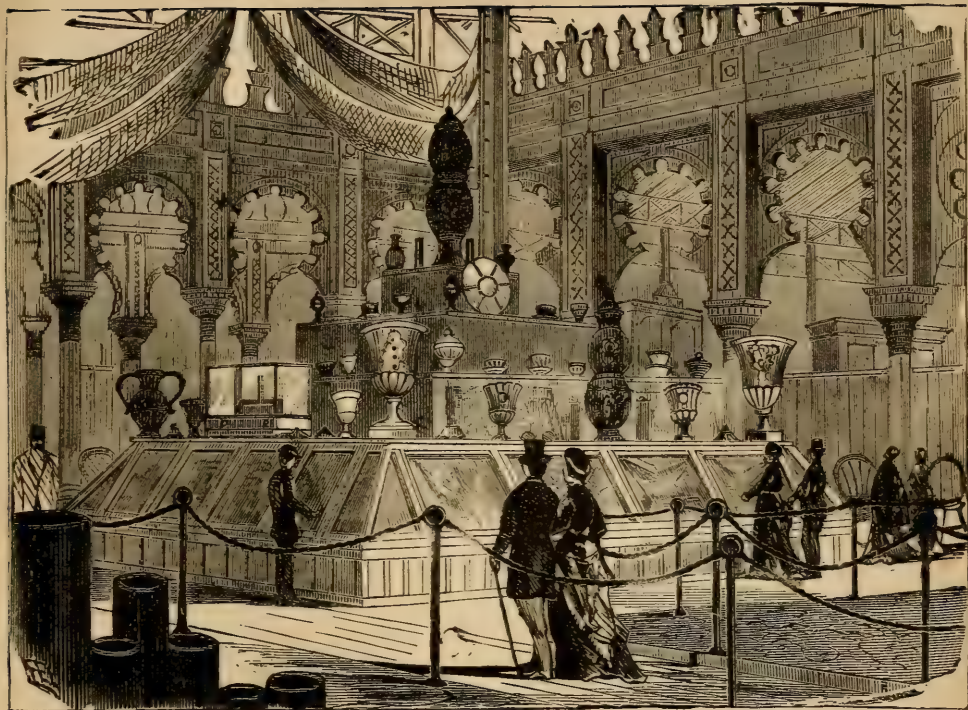
House in which the Declaration of Independence was written.

In 1776 this building stood beyond the thickly settled por-



THE HOUSE IN WHICH THE DECLARATION OF INDEPENDENCE WAS WRITTEN.

tion of the city, and in what was known as "The Fields." A garden, enclosed by a brick wall, occupied the site of the house which now stands on the corner. The house was new, and the situation was so pleasant, that it at once attracted the attention of that dear lover of nature, Thomas Jefferson, when he came to Philadelphia to take his seat in the Continental Congress. "I rented the second floor," he tells us, "consisting of a parlor



INTERIOR OF THE BRAZILIAN COURT, IN THE MAIN BUILDING.



GENERAL VIEW OF THE INTERIOR OF HORTICULTURAL HALL.

and bedroom, ready furnished." He paid thirty-five shillings a week for his rooms, and in the parlor he wrote the Declaration of Independence upon a little writing-desk three inches high, which still exists.



MARKET STREET ABOVE SEVENTH.

The desk was bequeathed by him to a friend, and was accompanied by a certificate in Mr. Jefferson's own handwriting, setting forth the place and time of its purchase by him, and the fact that he had used it in the preparation of the great and glorious document with which his name and fame are inseparably connected.

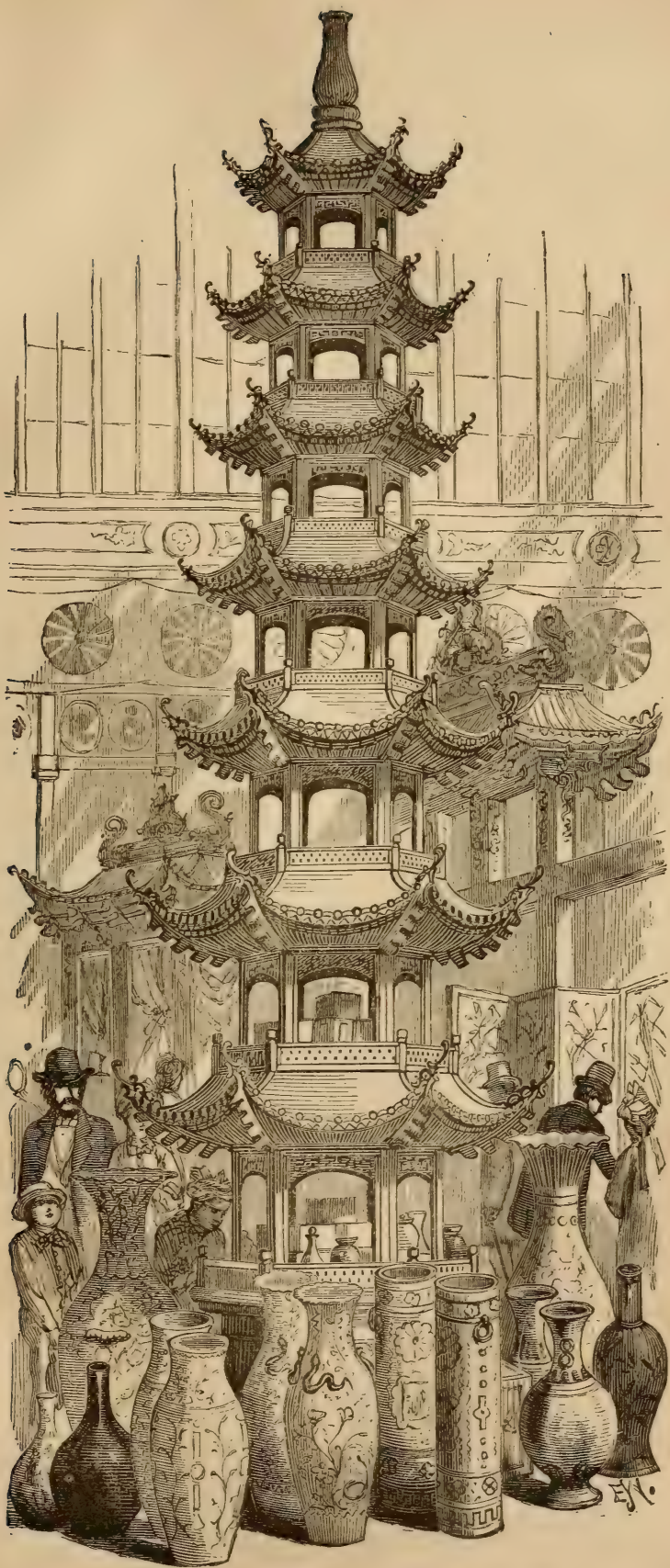


NATIONAL PUBLISHING COMPANY'S BUILDING.

On Seventh street, just north of Market, is the splendid iron-front building of the

National Publishing Company.

The offices, store-rooms, packing-rooms, etc., of the Company are in the building shown in the accompanying engraving. Their extensive printing office and bindery are located in two



PAGODA AND GROUP OF VASES, IN THE CHINESE SECTION.

adjoining buildings in the rear of this one. They are fitted up with every convenience for the manufacture of books, and with the latest and most improved labor-saving machinery. Every appointment is perfect in its way, and the work of this immense establishment goes on from day to day with regularity and precision. The unusual facilities enjoyed by the Company enable them to supply large editions of their books with a rapidity which only a great publishing house can command, and to supply their agents with promptness and regularity.

The Company was organized in 1863, under the presidency



CHRIST CHURCH IN 1776.

of Mr. J. R. Jones, who remains at its head. Under his able management it has enjoyed thirteen years of remarkable prosperity, and has taken rank as the largest and most successful subscription book house in the world.

Second Street.

Second street is one of the most peculiar features of the city. It extends in an almost unbroken straight line from the northern to the southern limit of the city, and is to Philadelphia very

much what the Bowery is to New York. It is lined for miles with retail stores of every description, the customers of which are almost entirely of the humbler class, and it would be hard to surpass the confusion and the utter disregard of "the eternal fitness of things" with which these are thrown together. It is a street which the visitor must see in order to appreciate it thoroughly.

The most prominent object on Second street is

Christ Church,

Situated north of Market. It stands on the site of the first church erected by the followers of William Penn. It was begun in 1727, and was completed in 1754. It is built of brick, in the old style, and is surmounted by a tall spire, from which he who has the courage to ascend it will be rewarded with a noble view over the city, the Delaware, and the surrounding country. The steeple is 196 feet in height, and contains a chime of eight bells, said to be the oldest in America. They rang out merrily upon the Proclamation of Independence one hundred years ago, and will join their voices to the glad chorus of rejoicing that will go up from the great city on the 4th of July, 1876. They were cast in London, and on the tenor bell is inscribed this legend: "Christ Church, Philadelphia, 1754. Thomas Lester and Thomas Peck, of London, made us all." The interior of the church is tasteful, but is finished in the style of the early part of the eighteenth century, except that the old high-back pews are gone, and the sitting arrangements are altered to suit the needs of a modern congregation. In the aisles of the church are buried John Penn, the first member of the Penn family born in America, Dr. Richard Peters, Robert Asheton, and many others who were noted men in their day, but are now remembered only by the scholar. Washington attended divine service regularly in this church, while in the city, during the Revolution, and during his residence in Philadelphia as President of the United States, and the feet of many of the greatest men of our history have trod the hallowed aisles of this venerable edifice. Christ Church is

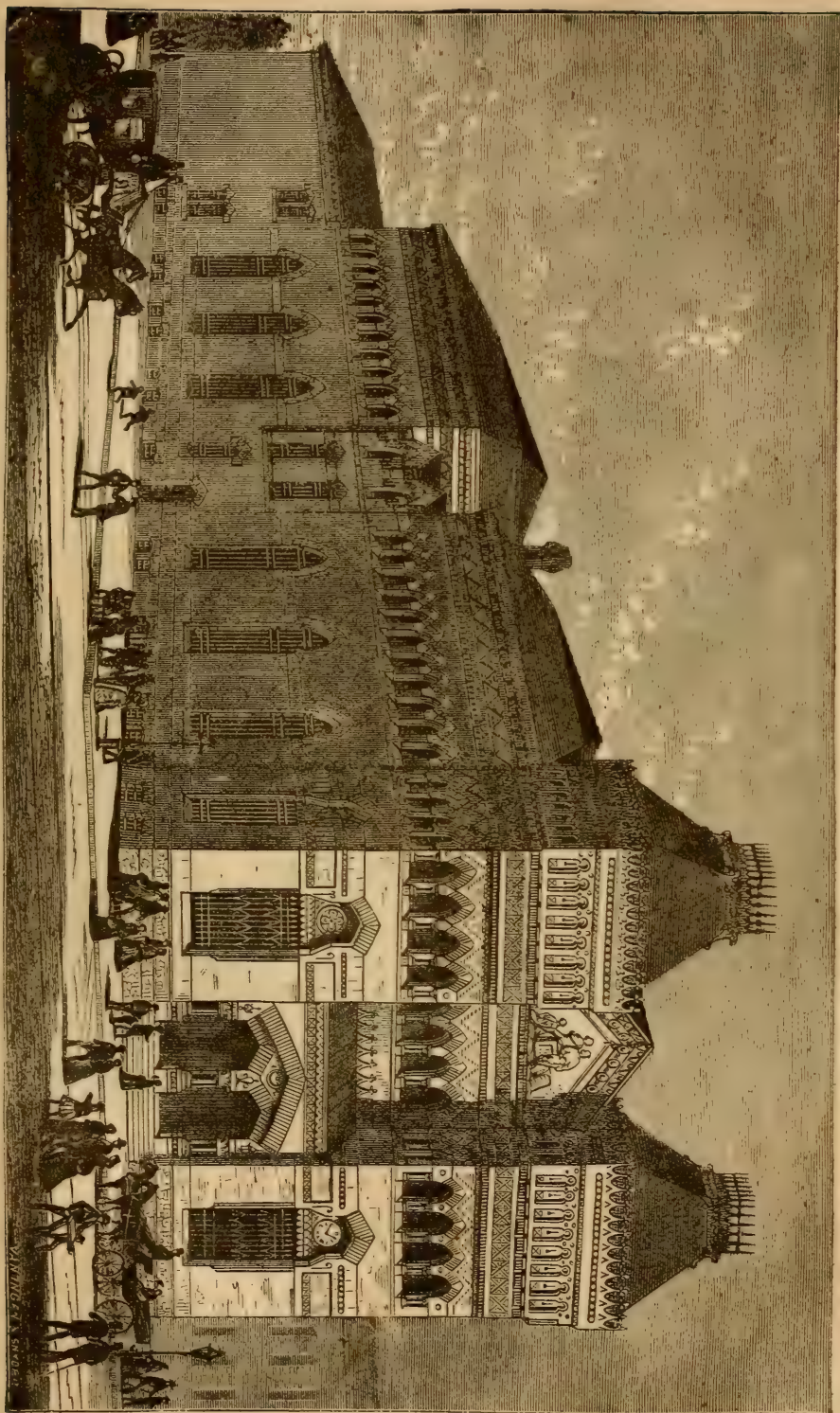
the property of the Episcopal Church. In 1772 the Rev. William White, afterwards the first Bishop of the Episcopal Church in Pennsylvania, was made Assistant Rector, and in 1789 the first general convention, which adopted the Constitu-



YOUNG MEN'S CHRISTIAN ASSOCIATION BUILDING.

tion of the Protestant Episcopal Church in the United States, met here.

The church is opened twice for service on Sunday, and for prayers on Wednesday and Friday mornings, at which time it may be visited.



GUARANTEE TRUST AND SAFE DEPOSIT COMPANY'S BUILDING, CHESTNUT STREET.



"EXHIBITION VASE," EXHIBITED BY GALLOWAY & GRAFF, IN THE
MAIN BUILDING.

Chestnut Street.

Chestnut street is the Philadelphia Broadway. It extends from the Delaware to the Schuylkill, crosses it by means of a magnificent bridge, and continues its course through West Philadelphia to the corporate limits. From the Delaware to Fifteenth street, it is lined with long blocks of lofty and elegant stores, and beyond this, to within a few squares of the Schuylkill, the street is built up with handsome residences.

Some of the most noted buildings in Philadelphia are located on this street. Commencing at the Delaware, we find the wharf at the lower end of the street lined with river steamers, and the busy crowded Delaware avenue, which lies along the river's bank, is noisy with the constant roar of the immense torrent of business that pours along it. Climbing the hill which leads up from the river, Front street is reached, "the high and dry bank" that rose above the river in the days of William Penn. From Front to Third street, the buildings are massive, very tall, and below Second street are almost entirely constructed of brick. Above Second street marble and other stores relieve the monotony of the brick fronts. This part of the street is devoted to the wholesale dry-goods trade.

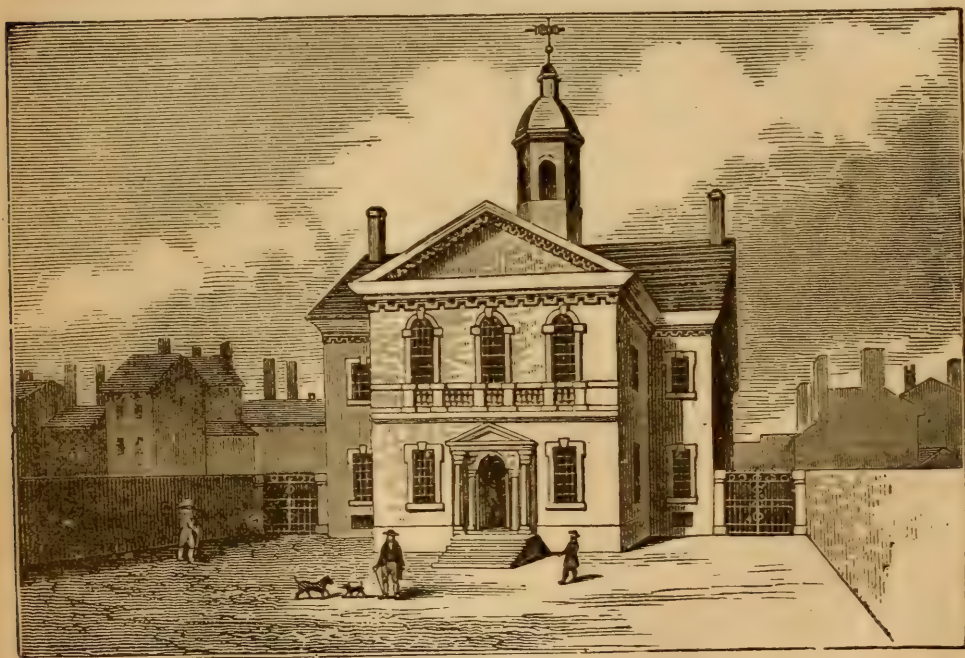
On the southeast corner of Third street is the five-story brick building of the Western Union Telegraph Company, with long lines of wires radiating from it in every direction. Third is the Wall street of Philadelphia, and we shall refer to it again. On the south side of Chestnut, above Third, is the handsome brown-stone building of the *Bank of North America*. This was the first bank established in the United States. It was chartered in 1781, at a time of great financial distress, and one of its principal originators was Robert Morris. This able financier made a good use of the bank in behalf of the Federal government, and restored the national credit by its aid. Immediately above the bank, and separated from it by an alley, is the new building of the *Guarantee Trust and Safe Deposit Company*. It is one of the handsomest structures in Philadelphia, and its two banking rooms are among the most beautiful and convenient in

the Union. The safe deposit vaults are burglar-proof in every sense of the word.

A little above this building, and standing back from the street in a court, is a quaint, venerable-looking edifice. This is

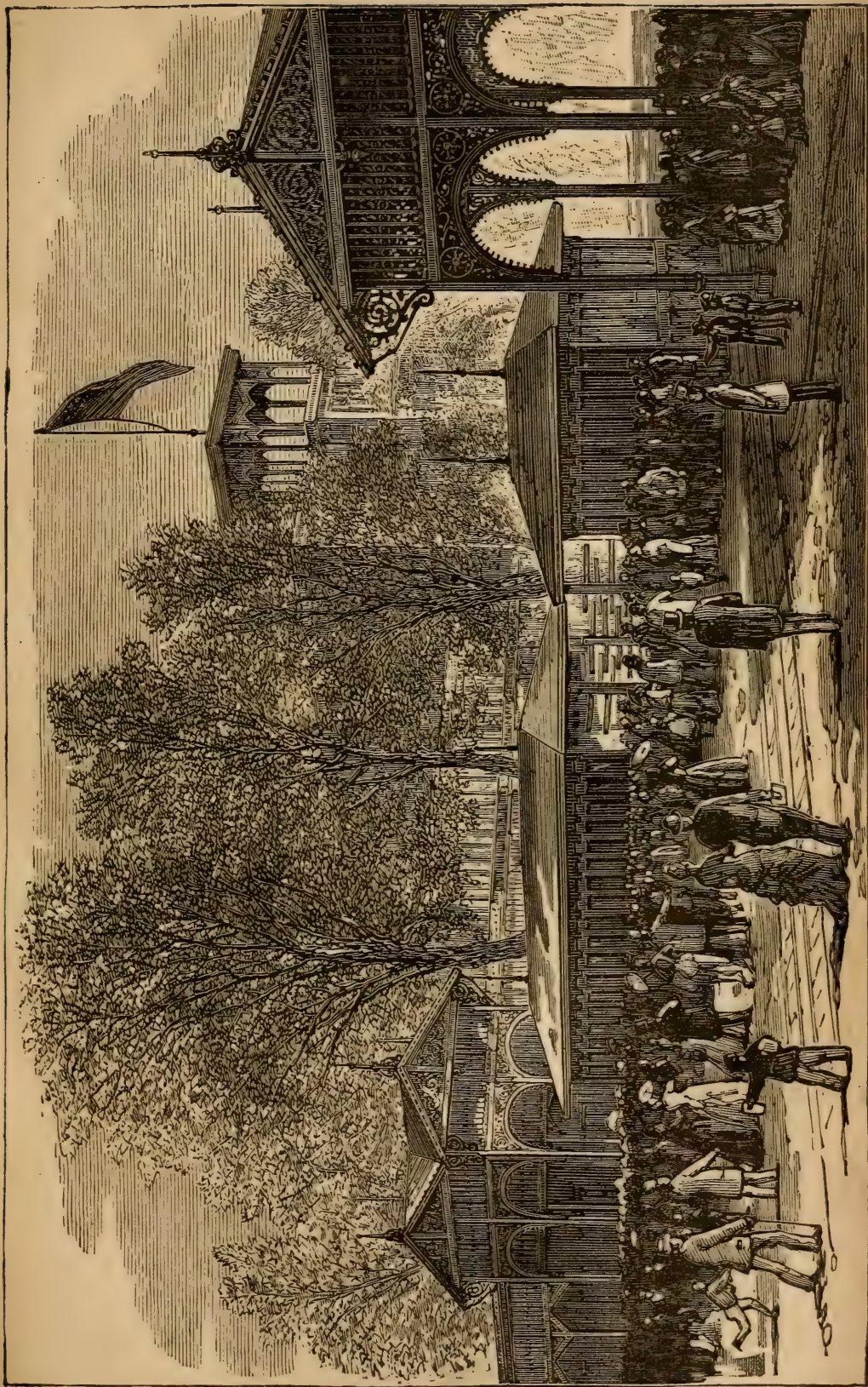
Carpenters' Hall.

The Carpenters' Company of Philadelphia was organized in 1724, and in 1770 began the erection of this structure as a place of meeting. It was finished in 1771. On the 5th of September, 1774, the Continental Congress, the great Congress



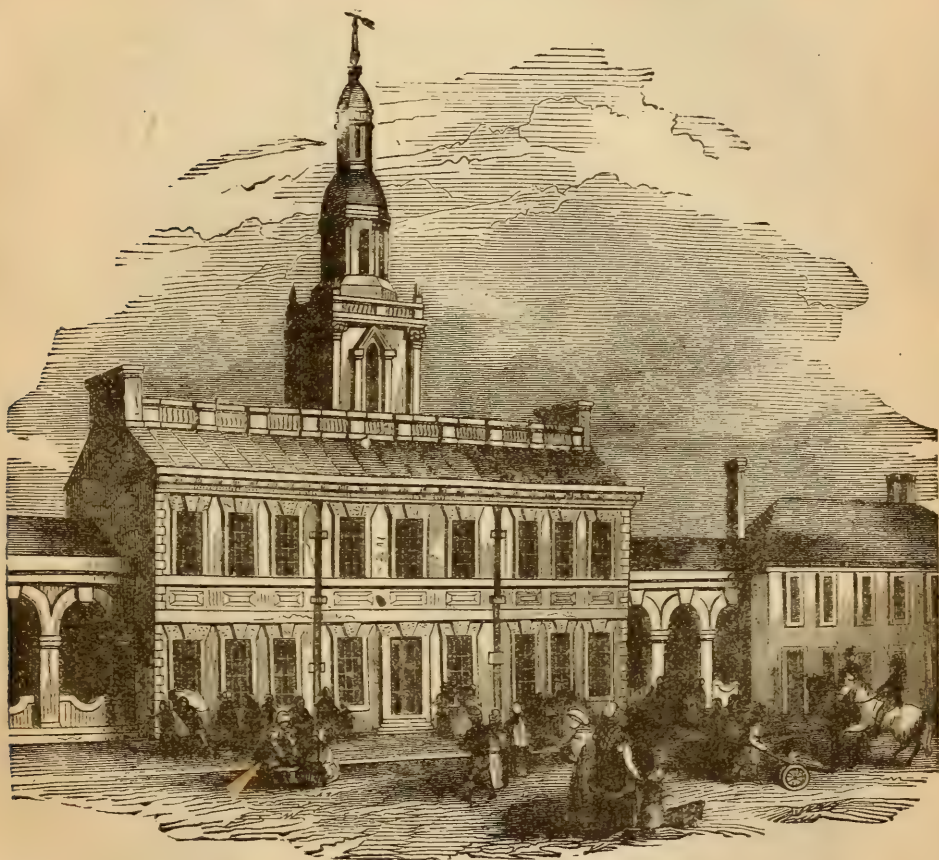
CARPENTERS' HALL.

of the Revolution, composed of delegates from all the colonies except Georgia, assembled in this building. It numbered fifty-five members, consisting of delegates from every colony save Georgia, whose governor had prevented the election of delegates. Among the members were many of the most eminent men in the land. From Virginia came George Washington, Patrick Henry and Richard Henry Lee; from Massachusetts, Samuel Adams and John Adams; from New York, Philip Livingston, John Jay and William Livingston; from Rhode Island, the



MAIN ENTRANCE TO THE EXHIBITION GROUNDS.

venerable Stephen Hopkins; from Connecticut, Roger Sherman; from South Carolina, Edward and John Rutledge and Christopher Gadsden; and from New Jersey, the Rev. John Witherspoon, the President of Princeton College. The members of this illustrious body were not strangers to each other, though the majority of them met now for the first time. They had corresponded with each other, and had discussed their wrongs so

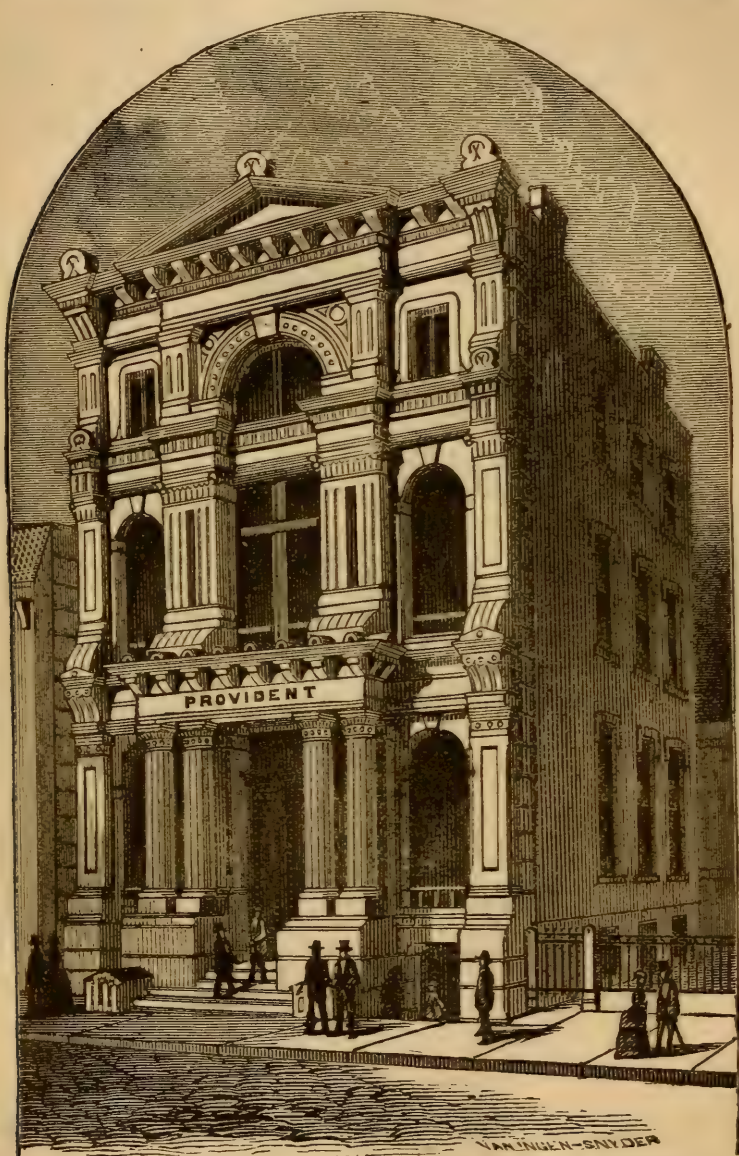


INDEPENDENCE HALL IN 1776.

thoroughly, that each was well acquainted with the sentiments of his colleagues, and all were bound together by a common sympathy.

The Congress was organized by the election of Peyton Randolph, of Virginia, as Speaker. Charles Thomson, of Pennsylvania, an Irishman by birth, and the principal of the Quaker High School in Philadelphia, was then chosen secretary. It

was proposed to open the sessions with prayer. Some of the members thought this might be inexpedient, as all the delegates might not be able to join in the same form of worship. Up



PROVIDENT LIFE AND TRUST COMPANY.

rose Samuel Adams, in whose great soul there was not a grain of sham. He was a strict Congregationalist. "I am no bigot," he said. "I can hear a prayer from a man of piety and virtue, whatever may be his cloth, provided he is at the same time a

friend to his country." On his motion the Rev. Mr. Duché, an Episcopal clergyman of Philadelphia, was invited to act as chaplain. Mr. Duché accepted the invitation.



CHESTNUT STREET BELOW THIRD.

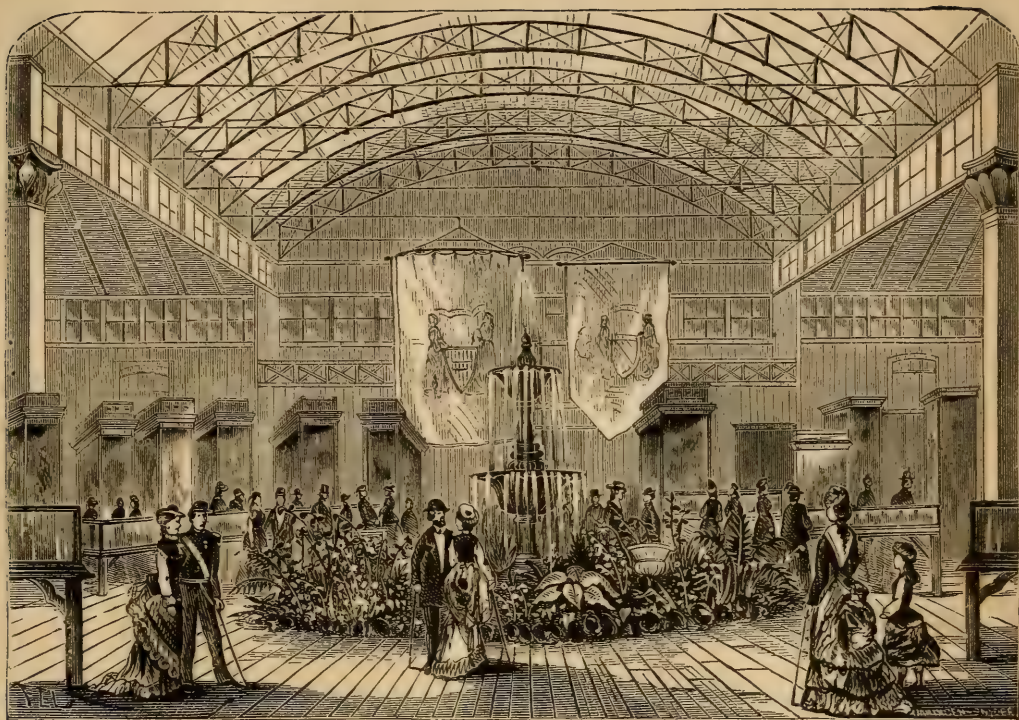
When the Congress assembled the next morning all was anxiety and apprehension, for the rumor of the attack upon Boston, which had reached Putnam and aroused Connecticut, had gotten

as far as Philadelphia. The chaplain opened the session by reading the thirty-fifth psalm, which seemed, as John Adams said, ordained by Heaven to be read that morning, and then broke forth into an extempore prayer of great fervor and eloquence. At the close of the prayer a deep silence prevailed in the hall. It was broken by Patrick Henry, who rose to open

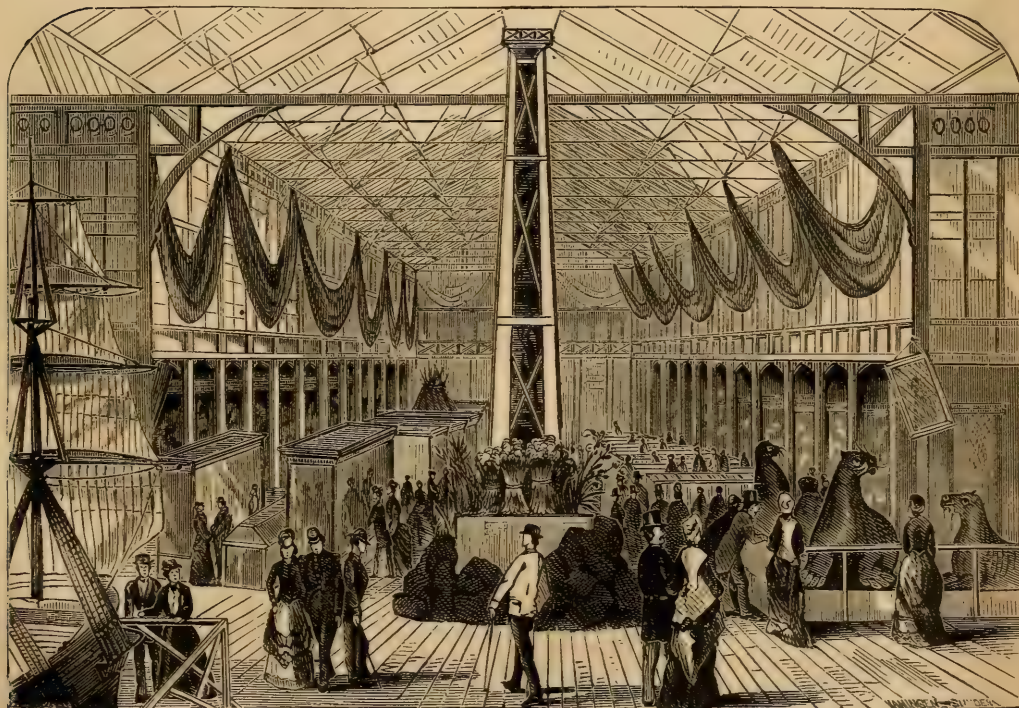


CHESTNUT STREET ABOVE SIXTH.

the day's proceedings. He began slowly and hesitatingly at first, "as if borne down by the weight of his subject," but as he proceeded he rose grandly to the duty of the occasion, and in a speech of masterly eloquence he recited the wrongs of the American colonies at the hands of Great Britain, and declared that all government in America was dissolved, and urged upon



VIEW OF THE INTERIOR OF THE WOMEN'S PAVILION.



INTERIOR OF THE UNITED STATES GOVERNMENT BUILDING.

the Congress the necessity of forming a new government for the colonies. Toward the close of his speech he struck a chord which answered in every heart. "British oppression," he exclaimed, "has effaced the boundaries of the several colonies; the distinctions between Virginians, Pennsylvanians, New Yorkers and New Englanders are no more. I am not a Virginian, but an American." The deputies were astonished at his eloquence, as well as at the magnitude of the interests with which they were intrusted.

Opposite Carpenters' Hall, on the north side of Chestnut street, is the elegant white marble building of the *Fidelity Safe Deposit and Insurance Company*. It is built in the Italian style, is one of the principal ornaments of the street, and is the most extensive establishment of its kind in the country. Its vaults are burglar and fire-proof. Its immense safe weighs one hundred and fifty tons, and was constructed at a cost of \$60,000. A handsome iron building, used by the *Provident Life and Trust Company*, stands in Fourth street just below Chestnut. The massive granite buildings of the Jayne estate front on Chestnut street, east of Third. The central one is eight stories in height.

On the south side of Chestnut, between Fourth and Fifth, is the

United States Custom House.

This noble structure was originally built for the second Bank of the United States. It was begun in 1819, and was finished in 1824, at a cost of nearly \$600,000. The bank was chartered by Congress in 1816, after the close of the second war with England. Its capital was \$35,000,000, of which the United States took \$7,000,000. It began operations in January, 1817. This was the bank at which Andrew Jackson struck such hard blows. In 1833 he removed the government funds from its keeping, and as he steadily vetoed the acts of Congress for a renewal of its charter, the bank passed out of existence at the expiration of its charter, in 1836. A few years later the building was purchased by the Federal government for about half of its original cost, and was converted into a

Custom House. It is constructed of white marble, and stands upon a platform or dais of stone, isolated from all the surrounding houses. It is an imitation of the Parthenon at Athens, and is one of the purest specimens of Doric architecture in America. It has a front of eighty-seven feet and a depth of one hundred



POST-OFFICE.

and sixty-one feet. It has two massive façades, one on Chestnut street and the other on Library street. Each front consists of a heavy entablature and pediment, resting upon eight large fluted Doric columns. The building contains the offices of the Custom House and the United States Sub-Treasury.

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MAIN AISLE IN AGRICULTURAL HALL, SHOWING THE OLD WINDMILL, ETC.



The Post-Office

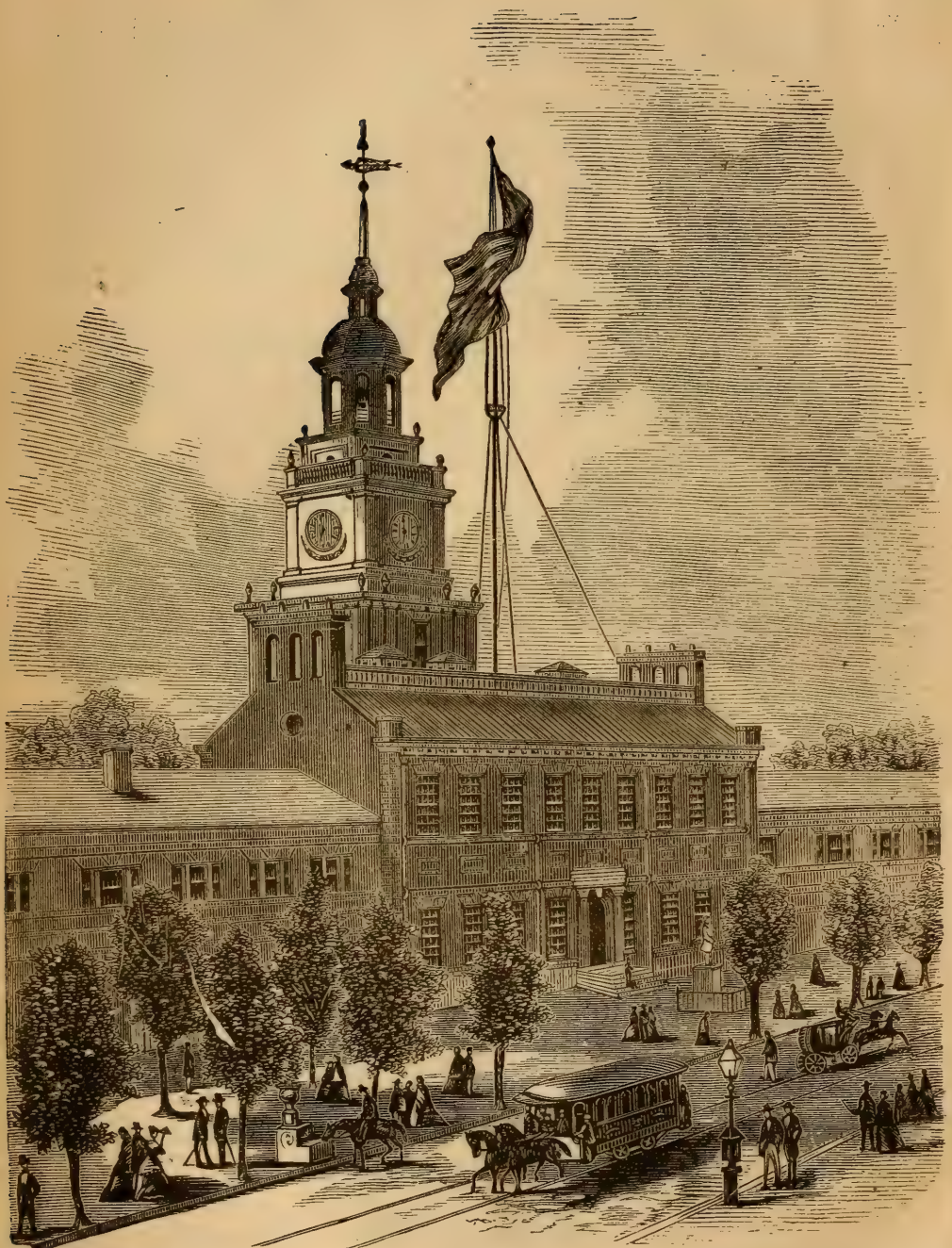
Is situated immediately above the Custom House. It is built of a bluish white marble, in the French style, with a mansard roof. The business of the Post-Office has long since outgrown its present contracted quarters, and a new building for its use is in course of construction higher up Chestnut street. The present edifice contains, in addition to the Post-Office, the rooms of the United States District and Circuit Courts and the office of the United States Marshal.

On the north side of Chestnut street, opposite the Custom House, is the substantial granite building of the *Bank of Philadelphia*. Just above it is the *Farmers' and Mechanics' Bank*, a white marble structure. This bank is one of the oldest in the Union, its charter dating from 1807. The present banking-house was built in 1855. It stands on the site of a spacious old-time mansion, which was the head-quarters of Admiral Lord Howe during the occupation of the city by the British in the Revolution. The bank is the financial agent of the State of Pennsylvania and of the city of Philadelphia, and is the depository of the "Philadelphia Clearing House." The Clearing House occupies a portion of the building. Here the banks of the city make their daily settlements.

Immediately above the Farmers' and Mechanics' Bank is the building occupied by the *Pennsylvania Life Insurance and Trust Company*. This company was established in 1812. It does an immense business as an executor, and is said to hold nearly \$100,000,000 in trust. In the same block are the *Peoples' Bank* and the *Philadelphia Trust and Safe Deposit Company*, both handsome structures. On the south side of Chestnut street, occupying the entire square from Fifth to Sixth, are the venerable buildings of

Independence Hall.

This building is decidedly the most interesting of any in the city. It was designed by Dr. Kearsley, who also planned Christ Church, was commenced in 1729 and completed in 1734.



INDEPENDENCE HALL, PHILADELPHIA, IN 1876.

The builder was Edmund Wooley ; the wings were not added until 1740. The glazing of the windows was done by Thomas Godfrey, since known to fame as the inventor of the quadrant. The original cost of the building was £5,600. The building is of brick, with marble trimmings, and has an air of stately dignity and repose, which offers a striking contrast to the hurry and bustle of the busy street. The central building is the handsomest, the wings being much plainer as well as smaller. A tasteful steeple, ornamented with a clock, rises from the centre of the main building. It was erected in 1828, in place of the original steeple, which was taken down in consequence of



INTERIOR OF INDEPENDENCE HALL.

being decayed in the latter part of the last century. In front of the Chestnut street entrance stands a handsome statue of Washington of white marble, the gift to the city of the children of the public schools.

The building was erected by the province of Pennsylvania for the purposes of a State House. The Continental Congress, composed of delegates from the thirteen colonies, assembled here

at the opening of its adjourned session on the 10th of May, 1775; and here was signed the Declaration of Independence, which has made this venerable edifice for all time the very shrine of American patriotism.

The interior decorations remain as originally designed by the architect. Over the doors of the main halls on the first floor are medallions containing the head of one of the Georges. The eastern hall—the one on the left of the visitor as he enters from Chestnut street—is “Independence Hall.” It was in this chamber that the Continental Congress held its sessions, and that the Declaration of Independence was signed. The hall is substantially unchanged, the only repairs that have been made being such as were necessary for its preservation. The old chandelier used by the Congress of the Revolution still hangs from the ceiling. The walls of the room are adorned with portraits of the Signers of the Declaration, by Peale, Stuart, Inman and Sully, and in the northwest corner stands Rush’s statue of Washington. On a dais at the eastern end stands the chair used by John Hancock, as President of the Congress, and the table on which the Declaration was signed.

At the opposite or western end of the building is the hall formerly used by the Court of Common Pleas. It is now a Museum of National Relics, and contains many rare and curious articles of historical interest. The collection is being constantly enlarged.

On the ground-floor of the steeple stands the old bell which, in 1776, hung in the State House steeple, and proclaimed liberty to the people of America. It was cast in England, especially for the State House, in 1752, but was cracked in testing it. It was then recast by Isaac Norris, of Philadelphia, who inscribed upon it the strangely prophetic words, “Proclaim liberty throughout all the land, unto all the inhabitants thereof.” On the morning of the 4th of July, 1776, vast crowds assembled around the State House, as it was known that the Congress would on that day take definite action upon the Declaration. The bell-ringer stationed himself in the tower ready to proclaim the good news the moment it should be an-



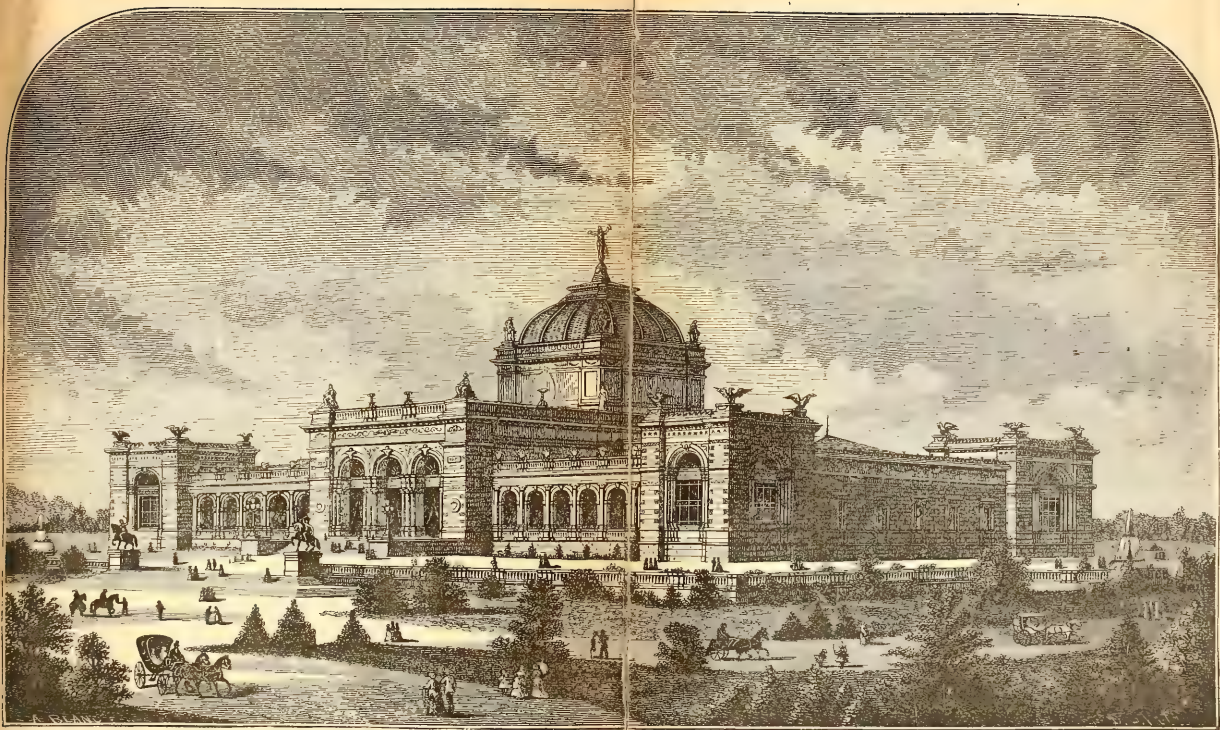
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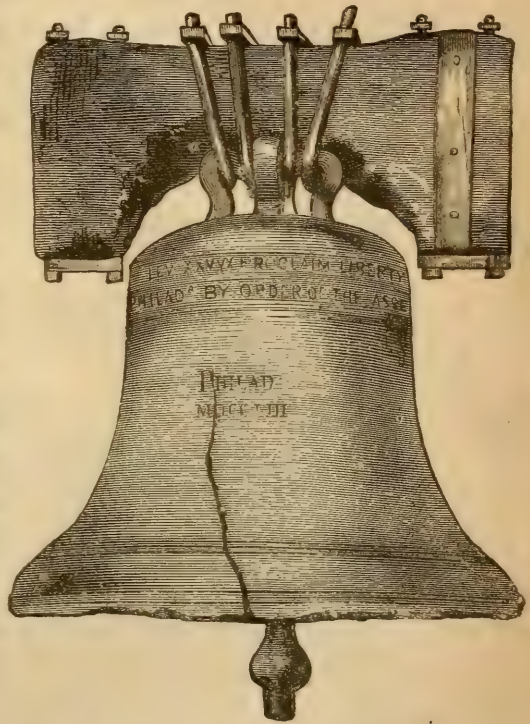


MEMORIAL BUILDING OR ART GALLERY—INTERNATIONAL EXHIBITION.

365 feet in length and 210 feet in width.

nounced to him, and had posted his little son at the door of the hall to await the signal of the door-keeper. When the announcement of the vote was made, the door-keeper gave the signal and the boy ran quickly to the tower. The old man heard him coming, and clutched the bell-rope with a firm grasp. The next instant the glad cry of the boy's voice was heard. "Ring! ring!" he cried; and then the deep, sonorous tones of the bell went rolling out of the tower, and were answered with a mighty shout from the assembled throng without.

A few days later the Declaration of Independence was formally read by order of Congress, from the doorway of Independence Hall to the people assembled in the square in the rear of the hall, and was received by them with overwhelming enthusiasm. At the close of the reading the crowd tore the royal decorations from the hall, and carried them into the square and made bonfires of them.



OLD BELL OF INDEPENDENCE HALL.

A broad stairway leads to the second floor, on which are located the chambers used by the Select and Common Councils of the City of Philadelphia. The hall at the western end was used as the Senate chamber during a part of the sessions of the First Congress. At the time of the Revolution, the lobby extended from this hall to the eastern end of the building. The American officers captured by the British at the battle of Germantown were confined here.

The eastern wing is now occupied by the Municipal Government, and contains the offices of the Mayor of the city, and the Police Department. The western wing is known as "Congress

Hall." On the eastern wall of this wing is a marble tablet bearing this inscription :

“ In this building met the
FIRST SENATE
and the
FIRST HOUSE OF REPRESENTATIVES
of the United States of America ;
and herein GEORGE WASHINGTON was inaugurated
President, March 4, 1793,
and closed his official career ;
where, herein also,
JOHN ADAMS was inaugurated the
Second President of the United States,
March 4, 1797.”

The House of Representatives occupied the first floor, now used by the Court of Quarter Sessions and the Highway



PUBLIC LEDGER BUILDING.

Department, and the Senate, upper floor, at present devoted to District Courts No. 1 and No. 2. Thomas Jefferson, as Vice-President, presided over the Senate during Mr. Adams' administration. Congress sat here from 1792 to 1799.

Immediately opposite Independence Hall are the *American*

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SCENE IN AGRICULTURAL HALL, SHOWING THE TOBACCO AND OTHER EXHIBITS

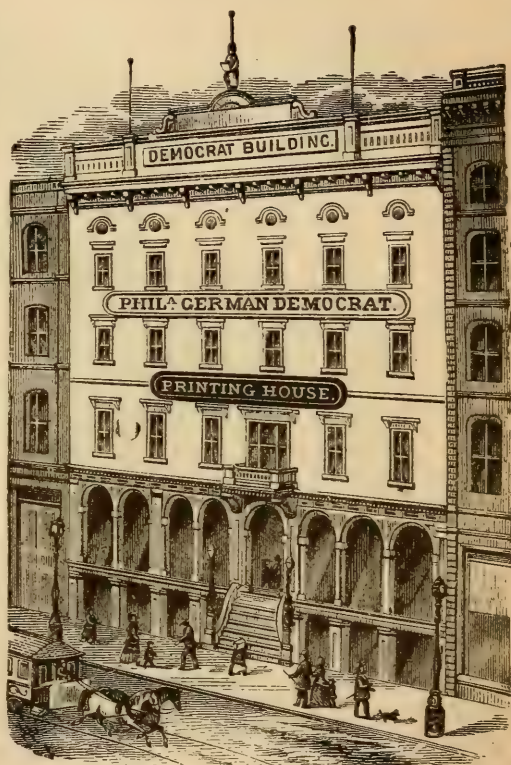
Hotel, the rooms of the *Philadelphia Press Club*, and the office of the *Adams Express Company*.

At the southwest corner of Chestnut and Sixth streets is the splendid brown-stone building of the *Public Ledger*. It is one of the most perfectly appointed newspaper offices in the world, and is a noble monument to the energy and ability of Mr. George W. Childs, its proprietor, who has made the *Ledger* one of the most useful as well as one of the most successful journals in the Union. On the northwest corner is the office of *The Day*, and a few doors above is the office of the *Evening Bulletin*, the oldest afternoon paper in the city. Almost immediately opposite the *Bulletin* is the office of the *German Democrat*, a showy building; and on the southwest corner of Seventh and Chestnut is the office of *The Press*. A few doors above Seventh, on the north side of Chestnut, is the office of *The Times*.

At the northeast corner of Seventh is *Guy's Hotel*, a handsome building of white marble. The hotel

is conducted on the European plan, and is an excellent house.

The heavy business of the street may be said to end at Seventh street, at which point the fashionable promenade begins. Above this, the stores are chiefly retail establishments, and in the next eight squares are collected the handsomest and most extensive dry-goods, clothing, jewelry, house-furnishing, carpet, book, and fancy stores of the city. Many of these are palatial structures, and in the majority the display of goods is



GERMAN DEMOCRAT BUILDING.

rich and beautiful. The windows are dressed with great taste, and afford a constantly changing series of pictures unsurpassed by any street in the world. The scene on the street is always brilliant. The whole fashionable world turns out here to see and be seen in fine weather, and from two to six in the afternoon the street is thronged with elegantly dressed people, and showy carriages and other vehicles.

On the north side, above Seventh, is the elegant front of the



GUY'S HOTEL.

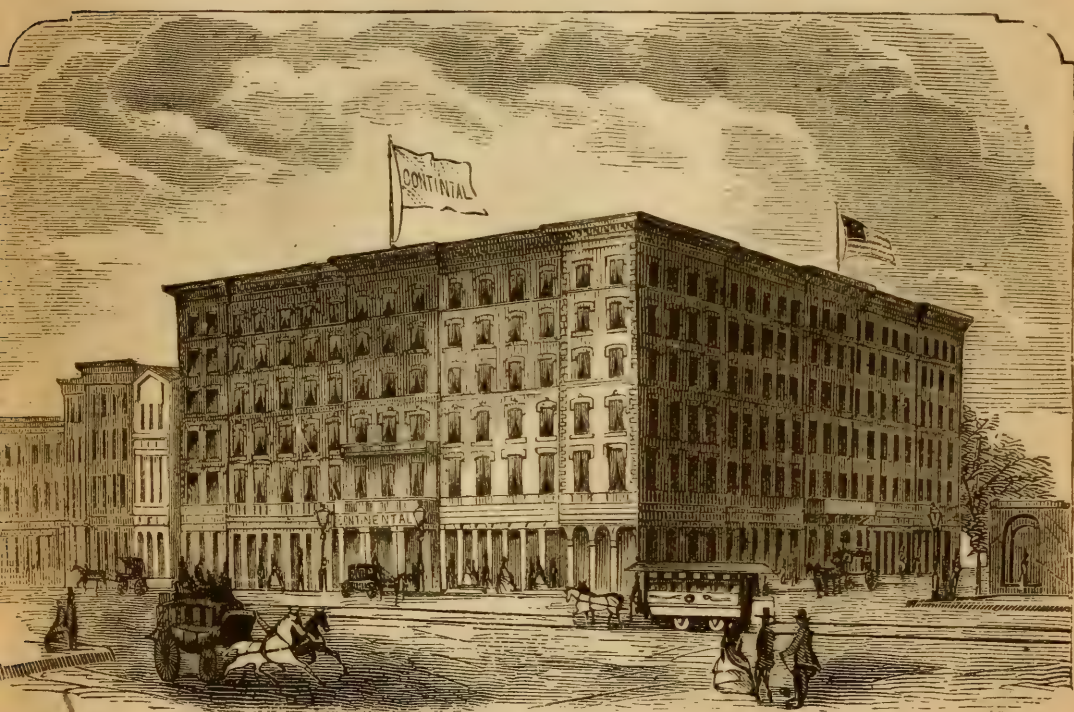
Old Masonic Temple. It is a conspicuous object on the street, and at the time of its erection was considered the most elegant structure of its kind in the country. It is now eclipsed by the new Temple on Broad street, and having been deserted by the brethren, is being converted into a hotel.

At the southeast corner of Ninth and Chestnut is the *Continental Hotel*, the largest in the city, and esteemed by experienced travellers the best in the Union. It is six stories in height, and covers an area of 41,536 square feet of ground.



OLD MASONIC TEMPLE, CHESTNUT STREET.

The Chestnut street front is built of Albert and Pictou sandstone, and is elegant and tasteful in design. The Ninth and Sansom street fronts are of a fine quality of pressed brick. The hotel was opened in February, 1860, and has done a steady and prosperous business ever since. It has accommodations for 1000 guests, and is famous as setting a better table than any American hotel. All of its appointments are elegant and substantial, and combine solid comfort with beauty. Elevators convey guests and their luggage from the ground-floor to the



CONTINENTAL HOTEL.

sixth story; telegraph wires radiate from the hotel to all parts of the world; the traveller may purchase his ticket to his destination and check his baggage before leaving the house; and most of the necessities and many of the luxuries of life may be had from the stores under the same roof. The cost of the building was \$1,000,000.

Immediately opposite the Continental is the *Girard House*, a stately edifice of brown-stone, erected at a cost of \$500,000. It is considered the second hotel in Philadelphia, and is a for-



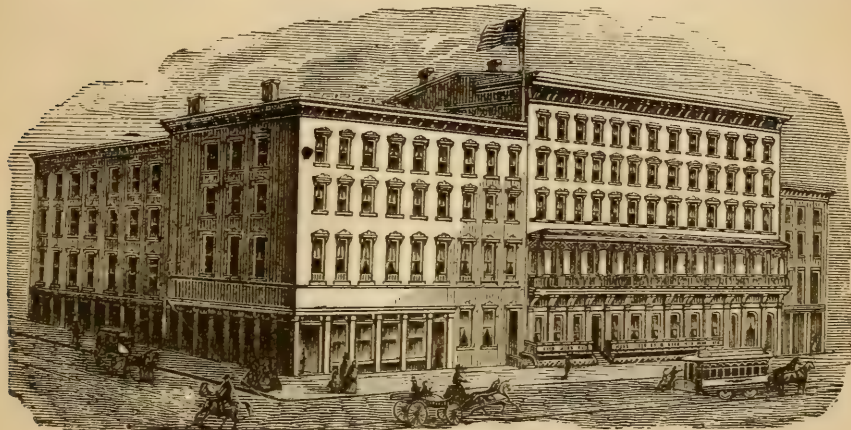
GROUP OF VASES, EXHIBITED IN THE CHINESE SECTION, MAIN BUILDING.

midable rival to the Continental. It has accommodations for 800 guests.

The eastern half of the square, bounded by Chestnut, Market, and Ninth streets, is the site on which the new *Post-Office* is being erected. An appropriation of \$3,000,000 has been made for this work, and the Post-Office will be a splendid and perfectly arranged building. It will be constructed of granite, and it is estimated that its cost will not fall short of \$6,000,000.

At the southwest corner of Chestnut and Ninth is the "Burd Block," built of white marble, and consisting of three beautiful and magnificent stores—the handsomest on the street.

At the northwest corner of Tenth street is the building of the



GIRARD HOUSE.

New York Mutual Life Insurance Company. It stands on the site of the old Keene mansion, and is a magnificent structure of light Rhode Island granite, in the Renaissance style. It is one of the principal ornaments of the city, and one of the handsomest business edifices in the world. Its cost was \$1,000,000.

On the north side of Chestnut, above Tenth, is the *American Theatre*, better known as *Fox's*. It is a gaudy structure, stands on the site of the old Academy of Fine Arts, and will seat 2800 people. On the opposite side of the street are a number of elegant stores.

The *American Sunday-School Union* occupies a handsome granite edifice on the south side of the street, between Eleventh

and Twelfth. It was erected in 1854, and is the head-quarters and central office of this vast organization. *Girard Row*, on the opposite side of the street, contains a number of handsome stores. One of these is occupied by the art galleries of C. F. Haseltine, a place which no lover of art should fail to visit.

Bailey's Jewelry Store, at the southeast corner of Chestnut and Twelfth, is a superb edifice of white marble. It is the largest establishment of its kind in the city, and is richly worth



CHESTNUT STREET AT TWELFTH.

a visit. The building is owned by Dr. S. S. White, manufacturer of dental materials, who occupies all the upper floors.

On the north side of the street, above Twelfth, are the *Chestnut Street Theatre*, the leading society theatre of the city, and *Concert Hall*.

The United States Mint

Stands on the north side of Chestnut street, above Thirteenth. The building is principally of brick, faced in front with white marble ashler. It is in the Ionic order, and the front is ornamented with a wide portico of beautiful design, supported by

six large pillars, and approached by a flight of wide steps. The United States Mint was established by Act of Congress, in April, 1792, and in 1794 David Rittenhouse was appointed by President Washington its first Director. A building on Seventh street, near Market, was first used, and there copper cents were



A CHESTNUT STREET DRY-GOODS STORE.

coined in 1793. Silver dollars were coined the next year, and gold eagles in 1795. Until 1826 all the work of coining was done by hand, but in that year steam machinery was introduced. The present structure was begun in 1829, and was finished in 1833. It is the principal mint of the country, all the others

being merely branches of this establishment. It is one of the most complete and perfectly equipped institutions of its kind. The steam-engine and the coining and milling machinery are exceedingly intricate and costly. The steam-engine used for driving the coining machinery is one of the most perfect and beautiful pieces of machinery in existence. The largest scale used in the mint will weigh 6000 ounces of metal, and the smallest one-thirteenth-hundredth part of a grain. Of late years the mint has been largely engaged in coining money for China and Japan. The probable resumption of specie payments at an early day will no doubt restore to this institution its old time activity. The operations of the mint are conducted with the most scrupulous integrity. The government has never lost a cent's worth by the dishonesty of any of the officials or employes since the institution was established. Visitors are admitted from 9 to 12 each day, and the officers of the mint take pleasure in explaining the coining and other processes. There is a valuable and extensive cabinet of rare and curious coins attached to the mint. Some of the coins are of a date 700 years before the Christian era.

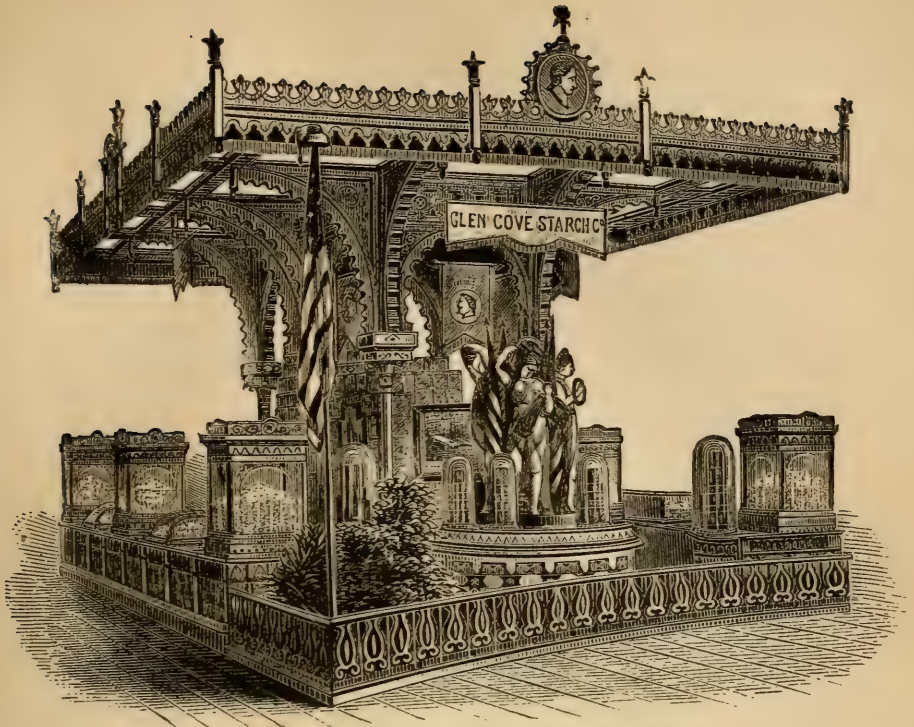
Nearly opposite the mint is the new building of the *Presbyterian Board of Publication*. It is built of white granite, with trimmings of polished Aberdeen stone.

At the southeast corner of Chestnut and Fifteenth streets is the magnificent new building of the *Young Men's Christian Association*. The ground-floor is devoted to stores, but the upper floors are used by the Association. It is the handsomest building owned by this society in the United States.

At the southwest corner of Fifteenth street is the *Colonnade Hotel*, a handsome structure of white marble, seven stories in height. It is a first-class hotel, and has accommodations for 700 guests.

At the northwest corner is the Episcopal Church of the Epiphany.

Immediately above the Colonnade Hotel is the *Reform Club House*, a marble building, pleasantly situated, and fitted up in superb style.



THE STARCH PAVILION, IN AGRICULTURAL HALL.



GENERAL VIEW OF THE INTERIOR OF AGRICULTURAL HALL.



Beyond Fifteenth, Chestnut street is lined with handsome residences, to within a short distance of the Schuylkill. The most beautiful and costly of these is the mansion built by the late Dr. Jayne, at the southeast corner of Nineteenth street. On the north side of Chestnut, above Eighteenth, is the Tabernacle Baptist Church.

The Schuylkill is crossed by means of a handsome bridge of iron, with stone piers. Beyond the river the street is built



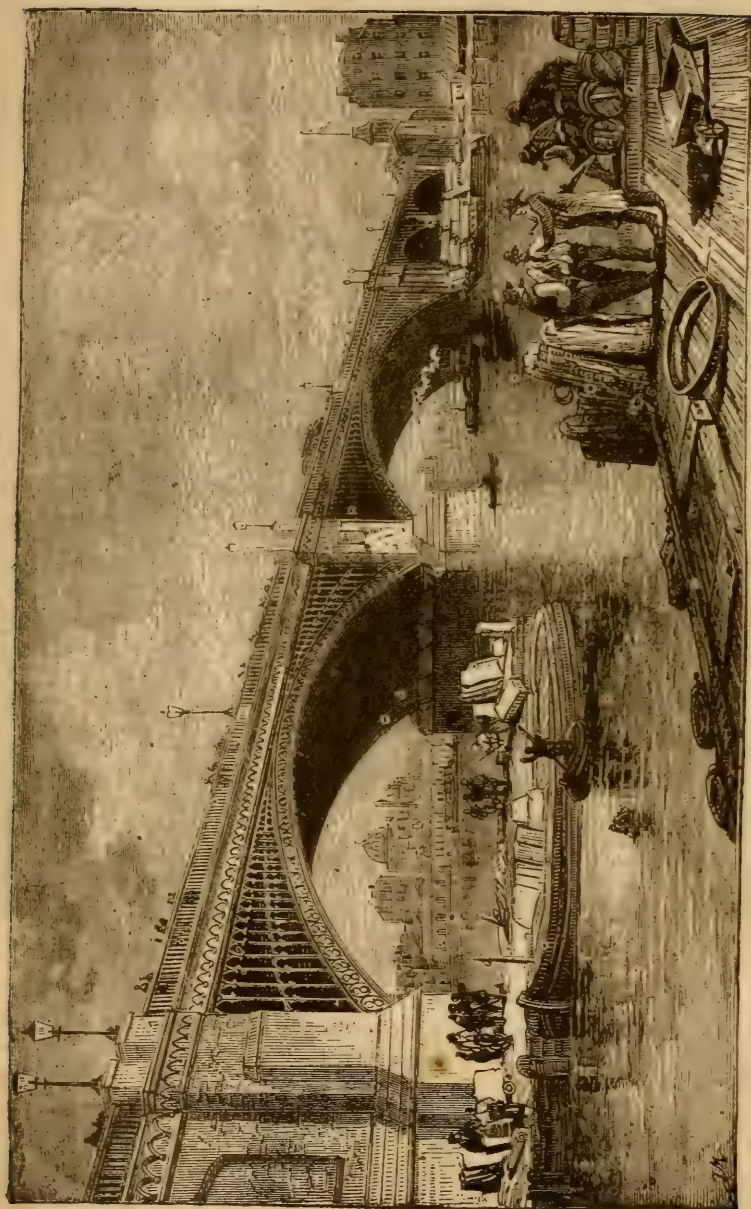
COLONNADE HOTEL.

up regularly for a few squares, but then gives way to a series of elegant villas.

Walnut Street.

The lower part of Walnut street is devoted entirely to business. At the corner of Second and Walnut is a large four-story brown-stone building known as "Anthracite Block," as it is occupied entirely by persons engaged in the coal trade. This part of the street is principally devoted to the same interest.

Just above Second street, Dock street intersects Walnut



CHESTNUT STREET BRIDGE OVER THE SCHUYLKILL, PHILADELPHIA.

obliquely, and in the triangle bounded by Third, Dock, and Walnut streets stands

The Merchants' Exchange.

This is the most conspicuous feature of this portion of Philadelphia. It is a splendid edifice, constructed of Pennsylvania marble. It is used for the purposes indicated by its name; and the large rotunda on its eastern side has lately been fitted up at



MERCHANTS' EXCHANGE.

great expense for the daily sessions of the Philadelphia Board of Brokers. Dock street, upon which the eastern side of the building fronts, is said to have been once the course of a stream of running water.

In Second street below Chestnut, and almost within sight of the Exchange, is the *Commercial Exchange*. It is a handsome building of brick and brown-stone, with a tower. The lower hall is used by the grain and flour merchants for their daily meetings, and the tower by the Philadelphia branch of the

United States Signal Service. The building stands on the site of the "Old Slate Roof House," which was so called because it was at that time the only house in Philadelphia provided with such a roof. It was built at a very early day by Samuel Carpenter. William Penn occupied it during his second visit to Philadelphia, in 1700, when he brought his family with him, and John Penn, the only native American of the family, was born here. General Forbes, Braddock's successor, died here, and General Henry Lee, the famous "Light-Horse Harry" of the Revolution, was buried from here. John Adams, John Hancock, and the Baron de Kalb also resided here for a while. Washington was a frequent visitor to the house.

At the southeast corner of Walnut and Third streets is the building of the *Delaware Mutual Safety Insurance Company*, one of the handsomest in the city. On the opposite corner of Third street is the office of the *Sunday Dispatch*. Between Third and Fourth the street is occupied almost entirely by coal offices.

On Fourth street below Walnut are the offices of the *Pennsylvania* and the *Philadelphia & Reading Railroad Companies*. The Pennsylvania Company controls more miles of railway than any other organization in the world. The building of this company is of brick, with a handsome front of Quincy granite. The Reading Railroad is the second corporation in the State, and controls the bulk of the transportation from the rich coal-fields of Pennsylvania to the seaboard.

Independence Square lies on the north side of Walnut street, between Fifth and Sixth; and diagonally opposite, at the corner of Sixth, is Washington Square; both of which have been already described. This is a region of lawyers' and real estate agents' offices; a number of insurance offices are also located here. On the corner of Walnut street and West Washington Square is the handsome bank building of the *Philadelphia Savings Fund Society*, the first savings bank established in America. It began in a small way in 1816, and its depositors now number 39,000, while its deposits amount to more than \$10,000,000.

On the northeast corner of Walnut and Ninth streets is the



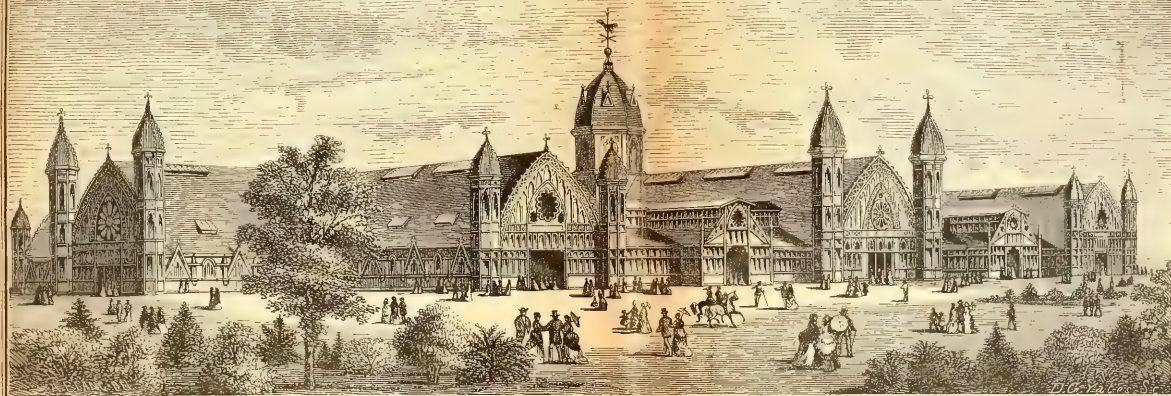
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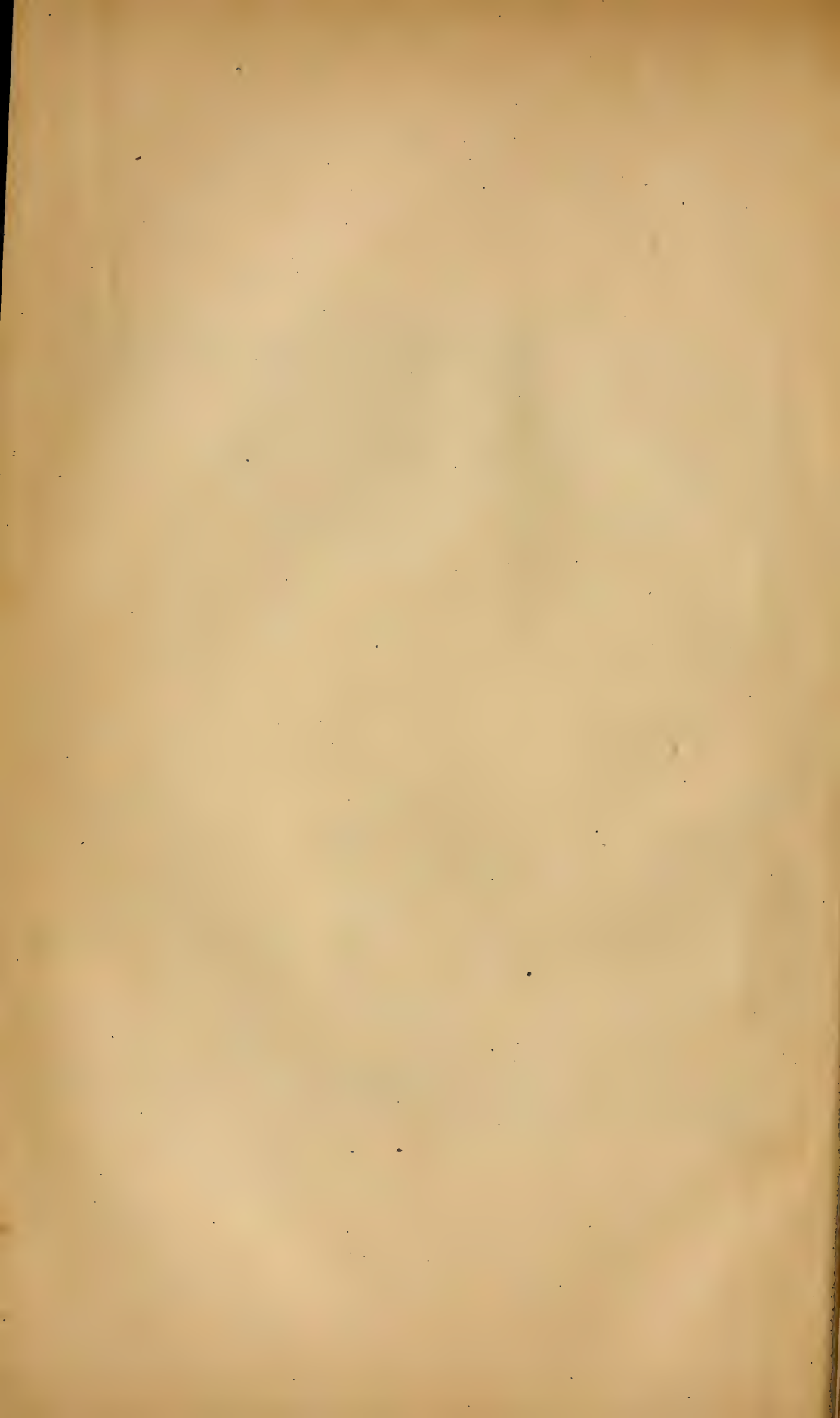
1776

AGRICULTURAL BUILDING.

1876

AGRICULTURAL HALL—INTERNATIONAL EXHIBITION,

820 feet in length and 540 feet in width



Walnut Street Theatre, once the leading theatre of the Union. It was the scene of many of the most memorable triumphs of Kean, Kemble, Forrest, Macready, and the elder and younger Booth.

Adjoining the northwest corner of Walnut and Ninth is the



RESIDENCE OF GEO. W. CHILDS, WALNUT STREET.

building occupied by city offices of the *United States Centennial Commission*. Immediately opposite is the office of the *Centennial Board of Finance*. On the north side of the street, just below Tenth street, is the *Irving House*, a fashionable hotel, with accommodations for 200 guests.

The business portion of Walnut street may be said to end

at Tenth street. Beyond this the street is occupied by dwellings, which, above Twelfth street, are among the handsomest in the country. Marble, brown-stone, granite, and free-stone alternate with brick, and give to the street an appearance more varied than that of Fifth Avenue, and almost as handsome.

Rittenhouse Square, already described, is at the intersection of Eighteenth and Walnut streets. The residences surrounding it are especially attractive, and afford a fair sample of the higher class of the domestic architecture of the city. At the upper end of Rittenhouse Square is the Church of the Holy Trinity, a handsome brown-stone edifice with a square tower and pinnacles of the same material. At the southeast corner of Twenty-first and Walnut is one of the most beautiful specimens of church architecture in Philadelphia. It is the property of the Presbyterian denomination, and is known as the *Second Presbyterian Church*.

The line of residences ceases abruptly about a square from the river. Beyond the Schuylkill it is taken up again, and Walnut street forms one of the most beautiful thoroughfares of West Philadelphia. At Thirty-ninth and Walnut is the palatial residence of Anthony J. Drexel, the well-known banker, and one of Philadelphia's most useful citizens. It is a splendid specimen of villa architecture.

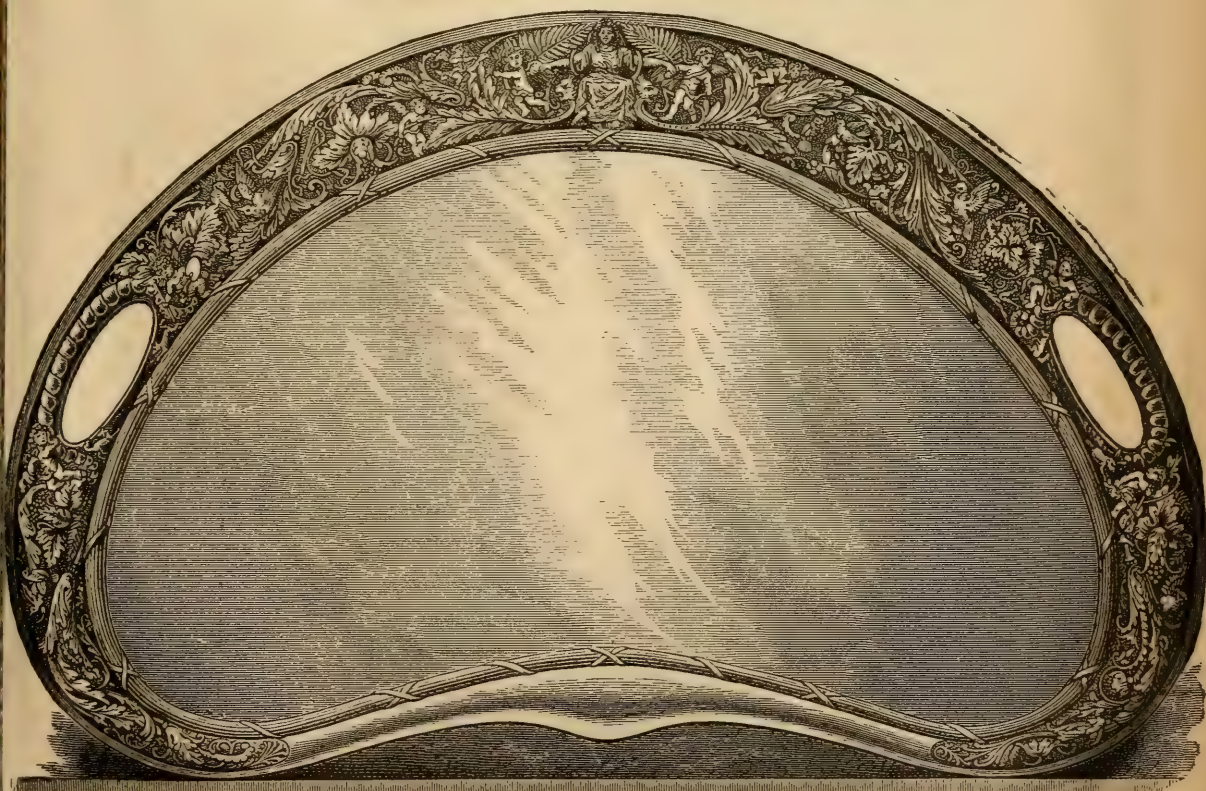
Arch Street.

Arch street is the next great thoroughfare north of Market street, and extends from the Delaware to the Schuylkill. It is a wide and handsome avenue, the lower part of which is given to business. It is a street which retains more traces of the Philadelphia of half a century ago than any of the great highways of the city, and is quieter and more staid than either Market or Chestnut. It is one of the brightest and most attractive of the city thoroughfares, and forms a pleasing contrast to either of those just mentioned.

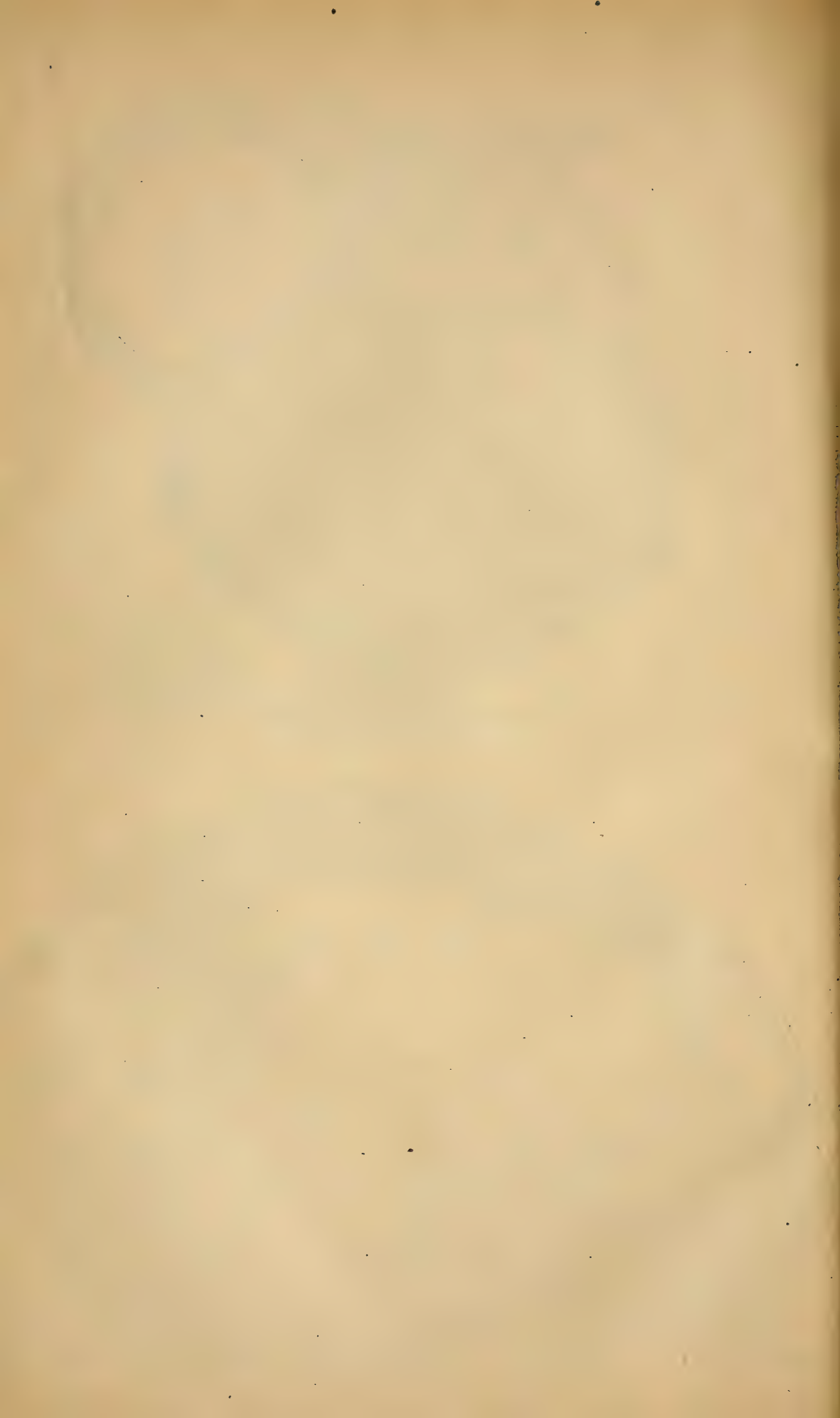
At the corner of Fourth and Arch, surrounded by a high brick wall, is the *Meeting House of the Orthodox Friends*. Philadelphia owes her prosperity to-day, in a great measure, to



SILVER PITCHER, EXHIBITED BY THE GORHAM MANUFACTURING CO.



SOLID SILVER SALVER, EXHIBITED BY THE GORHAM MANUFACTURING CO. VALUE \$3,000.

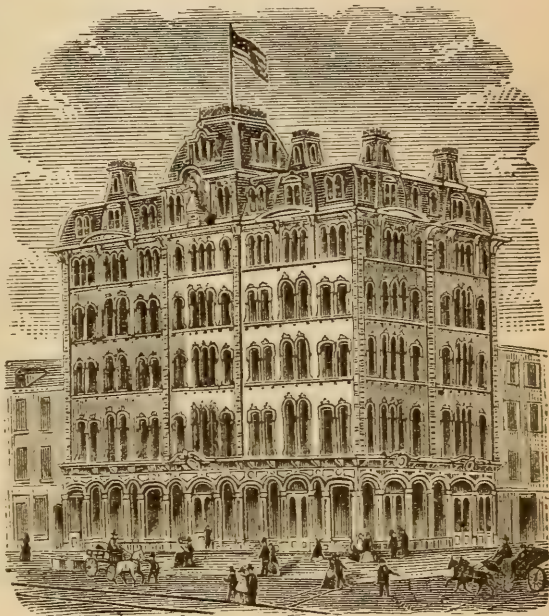


the people of this society, and in this city at least, the sincere and modest virtues of the Quaker will always command the grateful reverence of the people.

At the southeast corner of Fifth and Arch streets is

Old Christ Church Graveyard.

It is enclosed by a high brick wall. It was purchased at the same time the ground on which Christ Church stands was acquired, and the first interment was made here in 1700, five years afterwards. Many prominent men are buried here. Here lie the bones of Peyton Randolph, the President of the first Continental Congress; Francis Hopkinson, a signer of the Declaration of Independence; and Major-General Charles Lee. Close by the Arch street wall, at the upper end of the cemetery, are the graves of Benjamin Franklin, and Deborah, his wife. In 1858, a portion of the wall was removed, and an iron railing was set in its place. The passer-by can now look in from the street and behold the graves of the philosopher and statesman, and his wife. A plain slab of marble marks their last resting-place, bearing an inscription dictated by Franklin himself, with the exception of the date. It reads thus:



CORNER OF ARCH AND SIXTH STREETS.

“BENJAMIN
and
DEBORAH } FRANKLIN.
1790.”

What a contrast between this modest legend and the pompous

inscriptions in Laurel Hill! Franklin needed no monument over his tomb, no epitaph, to keep his memory green in Philadelphia. His monuments lie all over the city. Among the most prominent are the Philadelphia Library, the American Philosophical Society, the Pennsylvania Hospital, the University of Pennsylvania, and Christ Church.

Adjoining the grave of Franklin is that of his daughter



BENJAMIN FRANKLIN.

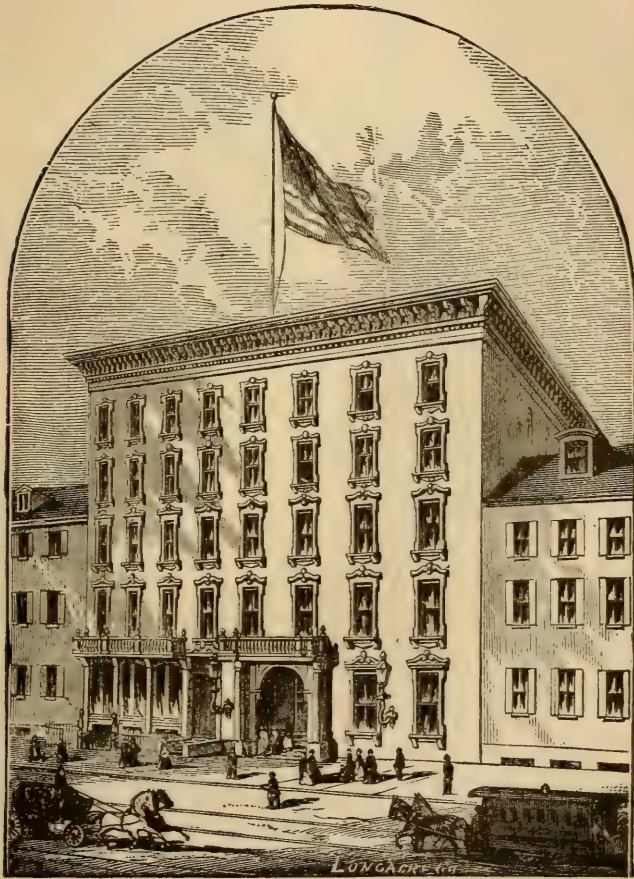
Sarah, and her husband, Richard Bache. It is marked by a similar slab.

At the southwest corner of Fifth and Arch is an ancient building, erected during the latter part of the last century for the use of the Free Quakers. It is now occupied by the *Apprentices' Library Company*, which was established in 1820, "for the use of apprentices and other young persons, without charge of any kind, for the use of books."

On the north side of Arch street, above Sixth, is the *Arch Street Theatre*, a handsome marble front building. The interior is one of the best arranged and most comfortable in the city.

On the same side, above Seventh, is the *St. Cloud Hotel*, a handsome building, with a brown-stone front, with accommodations for 400 guests.

At the northwest corner of Arch and Ninth streets is *Colonel Wood's Museum*, a popular place of amusement. Adjoining the northwest corner of Tenth and Arch is *Simmons' and Slocum's Opera House*.



ST. CLOUD HOTEL.

On Arch above Tenth, on the south side, are the *Methodist Book Rooms*.

At the southeast corner of Arch and Broad streets is the *Arch Street Methodist Episcopal Church*, one of the stateliest church edifices in the city. It was completed in 1873, is constructed entirely of white marble, and is built in the pure Gothic style,

with a spire rising to a height of 233 feet. Its cost was over \$250,000. At the northwestern corner is *St. John's Lutheran Church*. It is built of serpentine stone, with gray sandstone and Hummel-stone dressings. The tower, which is not yet completed, will be massive in its proportions, and very beauti-

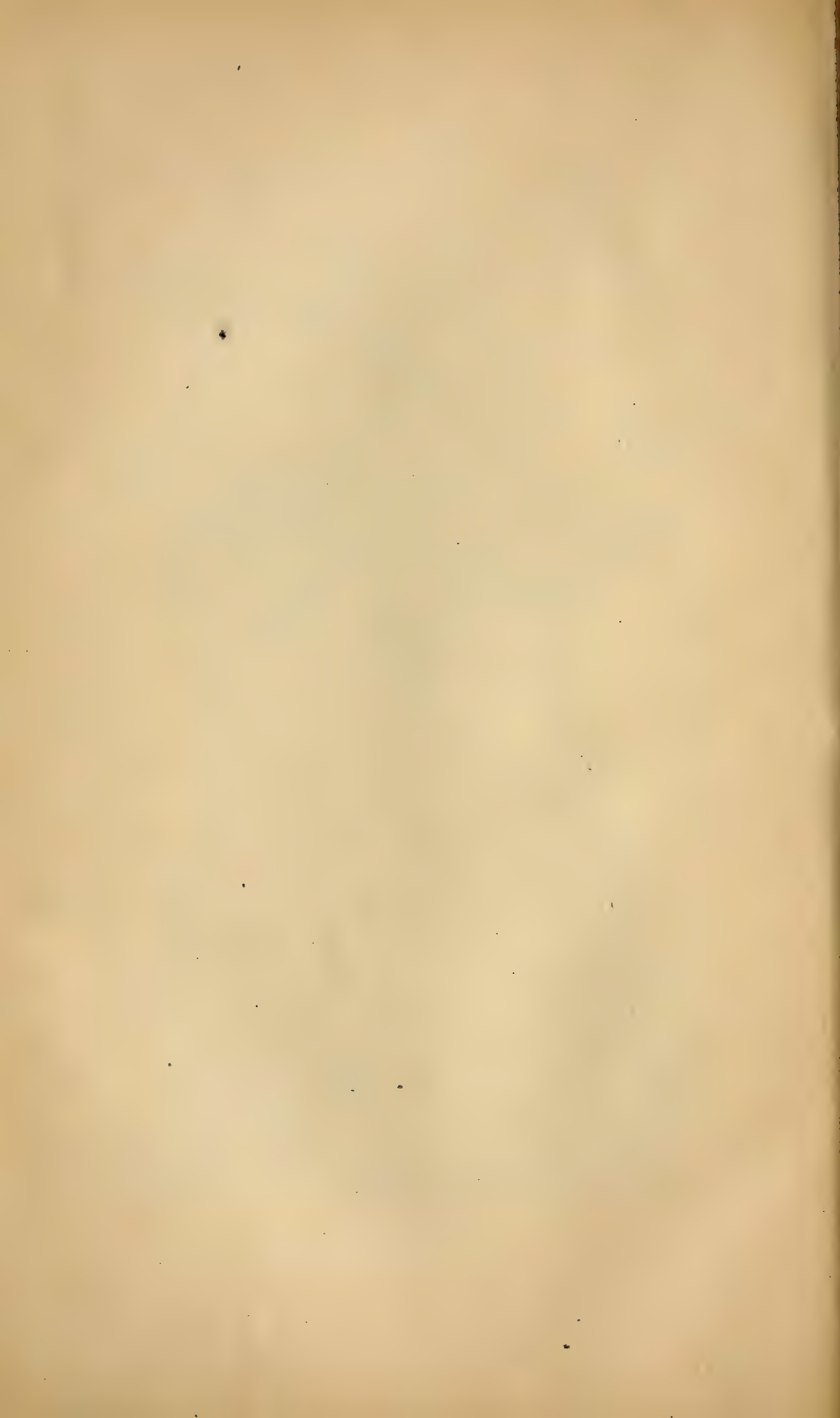


ARCH STREET METHODIST CHURCH.

ful. The interior decorations are very rich, and the altar is one of the handsomest in this country. The church is built in the florid German Gothic style, and will cost when completed about \$300,000. At the northwest corner of Arch and Broad is the *First Baptist Church*, one of the oldest organizations of that de-



SHOW-CASES IN THE CHINESE DEPARTMENT, MAIN BUILDING.



nomination in this country. The congregation was formed in 1684. The present edifice was erected in 1854. The church is a substantial brown-stone structure, with a spire 225 feet in height. The interior is very handsome.

Above Broad, Arch street is entirely devoted to residences, many of which are very handsome. Many of the "solid men" of the city live in this quarter, and their residences, while often plain and unassuming without, are sumptuously and beautifully furnished within, and are arranged with every convenience. At the corner of Arch and Eighteenth is the *West Arch Street Presbyterian Church*, a splendid edifice, much admired by the people of the city.

Broad Street.

Broad street is the longest in the city. It extends in an unbroken line from the Delaware to Germantown, a distance of about fifteen miles, and preserves a uniform width of 120 feet along this entire length.

The southern terminus of the street is at League Island, a low tract of land at the junction of the Delaware and the Schuylkill. This island was presented to the United States by the city of Philadelphia a few years ago, for a Navy Yard. Work was begun upon it almost immediately, and about a year ago the Navy Yard was transferred to it from its old quarters higher up the river. We shall refer to it again in another portion of this work. For some distance north of League Island, Broad street is bordered by truck farms, and is ornamented with a double row of trees. Several handsome churches and some fine residences are located south of Washington avenue. At the northwest corner of Broad street and Washington avenue is the *Depot of the Philadelphia, Wilmington and Baltimore Railroad*, or, as it is more commonly called, "the Baltimore Depot." It is a large and commodious building, well suited to the needs of this prosperous road. Diagonally opposite the depot, in the square bounded by Broad, Thirteenth, Christian and Carpenter streets, is the *Ridgway Branch of the Philadelphia Library*, to which we shall refer again.

At the corner of Broad and Pine streets is the *Pennsylvania*

Institution for the Deaf and Dumb. This noble charity was organized in 1820, by Bishop White, and in 1821 was incorporated by the State. The building presents a front of cut stone, with a portico supported by pillars of the Tuscan order. It consists of a central portion and two wings, the whole having a



BETH-EDEN BAPTIST CHURCH.

frontage of 200 feet. The State of Pennsylvania makes a liberal appropriation every year towards its support, and the States of Maryland, New Jersey, and Delaware also contribute to it, and send their deaf and dumb to enjoy its benefits.

At the northwest corner of Spruce street is *Beth-Eden Church*, the property of the Baptists. It is a superb edifice, and when

its spire is completed, will be one of the most perfect specimens of church architecture in America.

On Broad street above Locust is *Horticultural Hall*, the property of the Pennsylvania Horticultural Society, which was incorporated in 1827.



HORTICULTURAL HALL.

Immediately above Horticultural Hall, and separated from it by a space of a few yards, is the

American Academy of Music,

The most capacious and elegant opera house in the country. It was completed on the 26th of January, 1857, and was opened with a notable ball. It is still used for the grand balls of the Philadelphians, on which occasions a temporary bridge is thrown across the space between the Academy and Horticultural Hall, and the two buildings are used in common. The Academy is built of fine pressed brick, with brown-stone trimmings, and has a front of 140 feet on Broad street, and a depth of 238 feet on Locust street. The exterior is substantial, but

plain, and not at all in keeping with the magnificent interior. The stage is 90 feet wide, nearly 50 feet high, and nearly 100 feet deep. The proscenium is richly ornamented, and the boxes which it contains are situated between six splendid Corinthian pillars, three on each side, and are sumptuously upholstered. The parquette and its accompanying circle are very large, and above them rises the balcony, at the back of which are rows of private boxes, the family circle, and the amphitheatre.



ACADEMY OF MUSIC.

The galleries are supported by Corinthian pillars, similar to those of the proscenium, but smaller. The dome is frescoed to represent the sky with its myriads of stars, and from it hangs a magnificent crystal chandelier. The upholstery of the house is in crimson and gold, and the effect of the whole is dazzling and grand. The front doors lead into a large lobby, handsomely frescoed, and provided with retiring-rooms, cloak-rooms, etc. On the right and left, grand stairways lead to the balcony, which is backed by a smaller lobby opening into the foyer,

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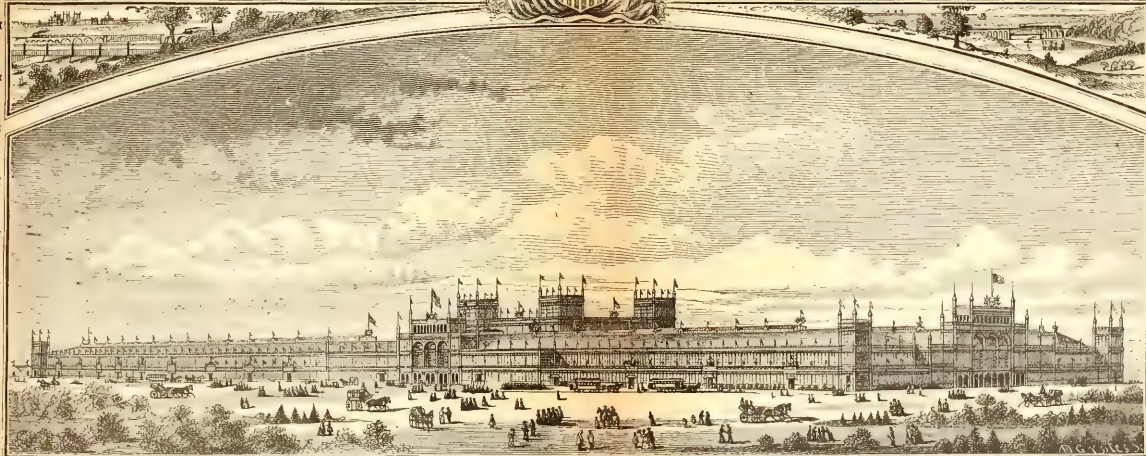
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PHILADELPHIA U. S. AMERICA



MAY 10TH - NOVEMBER 10TH 1876.



MAIN EXHIBITION BUILDING.

1776

INTERNATIONAL EXHIBITION.

1876

MAIN BUILDING OF THE INTERNATIONAL CENTENNIAL EXHIBITION, PHILADELPHIA, 1876.

1880 feet in length and 464 feet in width.

which is located immediately over the main lobby. The building will comfortably seat 3000 persons, and has held as many as 4000 sitting and standing. Its estimated value, with its scenery and other appointments, is \$800,000.

On the southeast corner of Broad and Locust streets is *The Colosseum*. It stands directly opposite the Academy of Music, and is one of the most noticeable buildings in the city. It was originally erected at the corner of Broadway and Thirty-fifth street, in New York, but was taken down, transferred to Philadelphia, and rebuilt here in the spring of 1876. As it will constitute one of the most prominent places of interest in the city during the exhibition, a brief description of it will be of service to the reader. The building is cylindrical in form, and has a diameter of 129 feet at the base, and 126 feet at the eaves. The height from the pavement to the under side of the roof is 77 feet. The foundations are of masonry, capped with granite blocks. The walls are constructed of wrought-iron frame work. T irons, $3\frac{1}{2}$ by $3\frac{1}{2}$ inches, are set upright, 6 feet apart at the base, and 3 feet apart at the top, and are connected at intervals of 7 feet 6 inches by T and angle-irons bolted to them, the whole forming a kind of ladder. There are twenty-eight of these ladders placed round the circumference, all securely joined together. Wooden braces are added to the panels of the ladders. The outside, 405 feet in circumference, and 75 feet high, is covered with corrugated iron. Being constructed in this way it can be seen how it was possible to take the building down in New York and ship it to Philadelphia, although the undertaking was a laborious one, and attended by enormous expense. The roof is covered with tin, and contains forty-eight skylights. Within the building is a promenade 94 feet in diameter, and 300 feet in circumference. It is fitted with ornamental columns and pilasters, and has fifteen alcoves containing many objects of interest and beauty. The main entrance to the building is at the corner of Broad and Locust streets, the façade of ornamental galvanized iron standing diagonally across the corner of the streets. The façade is 32 feet wide, and 65 feet high. The whole building is beauti-

fully frescoed in bright colors. The engine for working the elevator is in the basement at the centre of the structure, and the boiler at the rear of the lot, entirely separated from the building. There will be no fire whatever in the Colosseum, (the heating being done by steam-pipes), except gaslights, and every precaution in the shape of plugs, hose, &c., will be used to guard against accident.

A great feature of the Colosseum is the tower. This sub-structure arises from the ground in the interior of the building, around it running the promenade already described. It is 38 feet 6 inches in diameter at the base, and formerly terminated at the roof-line. In reconstructing the building on the Philadelphia site, the tower will run up to a total height of 166 feet, with a diameter at the top of 20 feet. The tower has a balcony 113 feet above the pavement-line, 47 feet in diameter. From this point the tower takes a conical form, decreasing in width as it rises. At a height of 141 feet from the pavement, a second balcony is reached, with a diameter of 33 feet. The balconies are each 4 feet wide outside the tower, and protected by substantial railings. The two balconies will accommodate from 250 to 300 people at one time. An Otis steam elevator, capable of carrying forty persons at a time, will run from the ground to the upper balcony, whence there will be an iron stairway on the outside of the tower giving access to the summit, twenty-five feet above, where fifty or more persons may be accommodated at one time. This topmost space is protected by a high and strong iron railing. The tower is composed of sixteen "ladders" similar to those used in the construction of the main building. On the inside is a heavy framing of timber, extending from the floor to the top, and braced to the iron work, within which the elevator works. In addition to the elevator, a staircase seven feet wide runs round the interior of the tower to the top. At some appropriate point will be hung a chime of bells. Here it may be stated that the cost of the Colosseum in New York was \$250,000. The extension of the tower and the cost of tearing down, shipping and rebuilding, will bring the total value of the



BRONZE VASE, EXHIBITED IN THE JAPANESE SECTION, MAIN BUILDING.

investment at Broad and Locust streets, apart from the paintings, to a sum not far short of half a million.

It is expected that the tower will prove a great point of attraction to residents and visitors. There is no place in the vicinity from which so good a bird's-eye view of Philadelphia can be had, nor under such pleasant circumstances. A few steeples in the city have the requisite elevation, but there are no accommodations in them for visitors, who are forced to climb the whole distance. At the Colosseum tower the visitor will be taken up by an elevator, and all the surroundings will be of a nature suited to the class of citizens who will be attracted to the spot. Arrived at the first balcony, the sight-seer may either there satisfy his curiosity, or again entering the elevator, may be carried still higher up the shaft to the second balcony. If he has yet further aspirations, he may take the outside stairway to the extreme top. It is probable ladies will not much affect the last stage of the journey, but it will be perfectly safe for those who choose it. It is evident that strangers may gain a most correct and immediate idea of the topography of Philadelphia through this medium than by any other means at hand during the Centennial season.

The building is designed expressly for the exhibition of the magnificent panorama of Paris, which has attracted so much attention in that city and in New York. The picture shows "Paris by Night," and is the work of Messrs. Danson & Son, artists of eminence. It covers over 40,000 square feet—or more than an acre—of canvas, and represents a territory of about seven square miles. Every street and every building of prominence or interest in all this wide space is depicted on the canvas with absolute correctness. The great capital is shown in its most magnificent mood, and the painting has a reputation among artists higher than that of the "Old London." In its illusion "Paris by Night" surpasses all works of this kind ever devised. It is almost impossible to escape the impression that one is indeed looking down upon an enormous living and breathing city. Drawing and perspective are perfect, and Paris, absolutely as it was before the Communistic spoilers

ravaged it in parts, is practically before the gazer. All persons who have been in Paris will take delight in refreshing their memories by this means, and it will give the greater number who have not been there an excellent idea of the place where all "good Americans go when they die." The Cyclorama is arranged by ingenious mechanism around the entire inner surface of the circular edifice, its lower edge, however, not coming to within twenty-five feet of the ground floor, that space being filled, as before stated, by the promenade. The spectator ascending the tower emerges at a height of about fifty feet upon a central platform, looking downward from which he sees the sparkling city spread seemingly for miles around him. The idea is that the sight-seer is upon some eminence in the city of Paris, and there is nothing to break the spell, unless it is the queer French spoken by the people around him.

To further carry out the pleasant fiction the canvas is made to extend far up and beyond the platform, and is painted to represent the heavens. The stars shine out, and the moon pours its full soft light over the scene, harmonizing and contrasting with the myriad illuminations which make gay the Boulevards, the bridges, and the other busy centres of Parisian life. At certain times mechanical means are brought in play by which there is a perfect simulation of a storm over the city. The moon becomes obscured by clouds and the lights of the city are blurred and extinguished by fast driving rain. This scenic effect universally excites admiration and astonishment.

At the southwest corner of Broad and Walnut is the new *St. George Hotel*, a first-class house, with accommodations for 400 guests.

On the west side of Broad, north of Walnut, is the

Union League Club House.

This magnificent edifice is the property of the Club whose name it bears. It is built of brick, with brown-stone trimmings, in the French Renaissance style, and cost over \$200,000. It was finished in May, 1865. It is sumptuously and tastefully furnished, and has all the appointments of a first-class club

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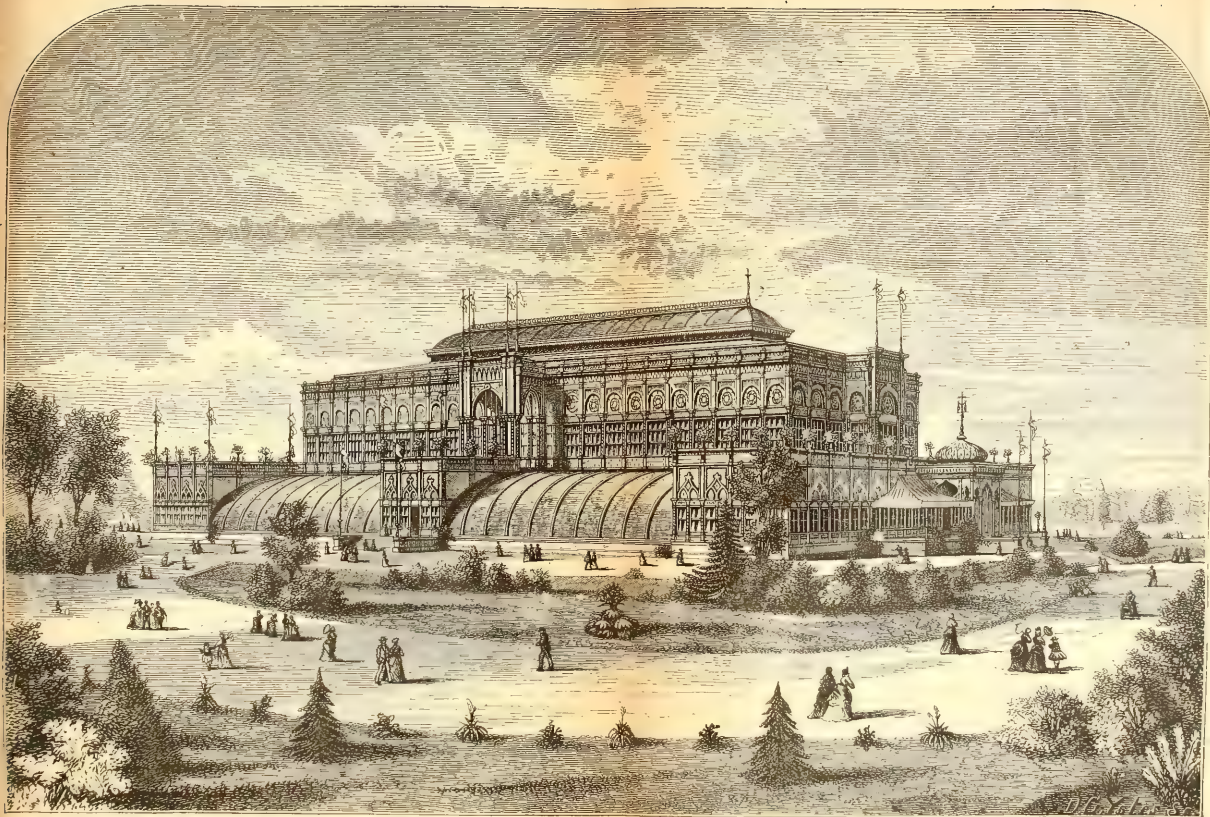
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HORTICULTURAL HALL—INTERNATIONAL EXHIBITION.

383 feet in length and 198 feet in width.



house. Its restaurant is excellent, and it contains many valuable paintings, statues, and busts. The club has now a membership of over two thousand. It was organized in 1862 for the avowed purpose of giving to the general government "an unwavering support of its efforts for the suppression of the rebellion."

Immediately above the "League House" is the *La Pierre House*, one of the most elegant hotels of the city, with accommodations for over 200 guests.



UNION LEAGUE CLUB HOUSE.

A Presbyterian church, with a handsome Corinthian portico, stands opposite the "League House," and immediately above Chestnut street is another on the same side of Broad street.

The line of Broad street is interrupted a little above Chestnut street, by the enormous pile of the new

Public Buildings,

now in course of erection for the use of the municipal government. The building is surrounded by a grand avenue, 135 feet wide on the southern, eastern, and western fronts, and 205 feet

wide on the northern front. The plan submitted by Mr. John McArthur, Jr., architect, was adopted. It is essentially modern in its leading features, and presents a rich example of what is known by the generic term of the "Renaissance," modified and adapted to the varied and extensive requirements of a great American municipality.

It is designed in the spirit of French art, admirable in its ornamentation, while the whole effect is one of massive dignity, worthy of us and our posterity.

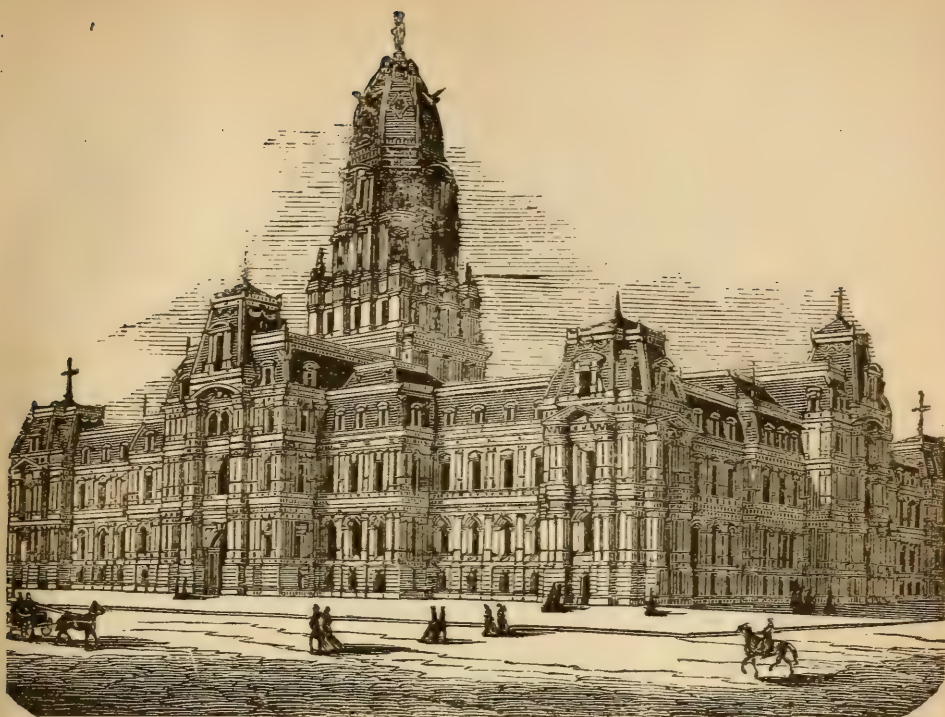
This immense architectural pile covers, exclusive of the courtyard, an area of nearly $4\frac{1}{2}$ acres, and consists of one building,



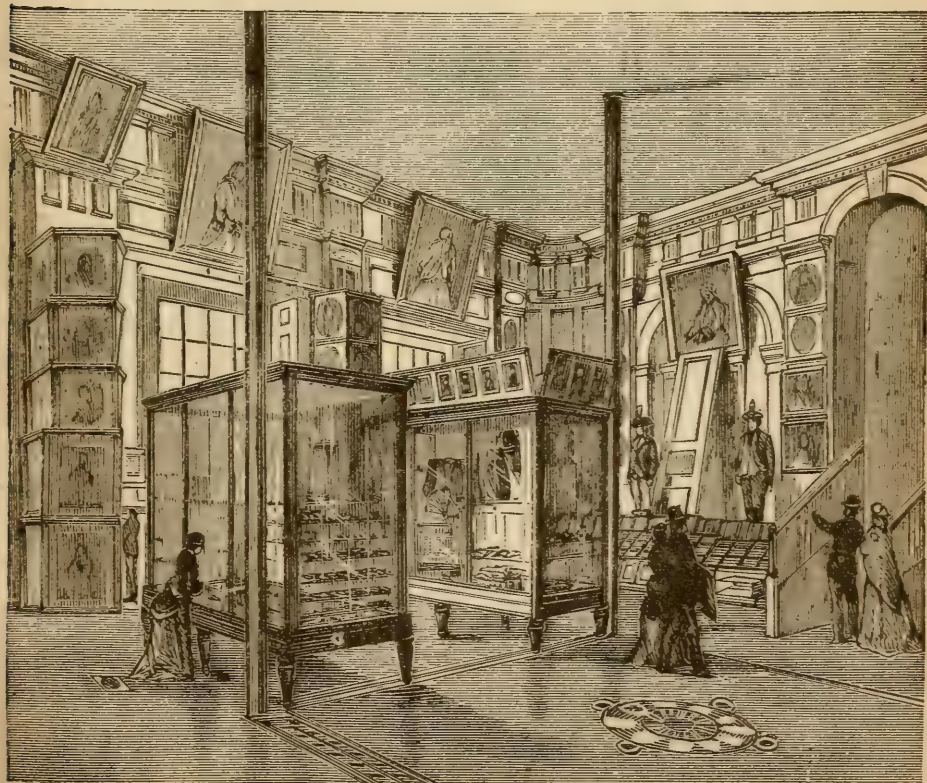
LA PIERRE HOUSE.

surrounding an interior court-yard. The north and south fronts measure 470 feet, the east and west $486\frac{1}{2}$ feet, in their extreme length. The four fronts are similar in their design. In the centre of each an entrance pavilion, of 90 feet in width, rises to the height of 185 feet, having receding wings of 128 feet elevation. The fronts terminate at the four corners with towers or pavilions of 51 feet square and 145 feet high.

The whole exterior is bold and effective in outline, and rich in detail, being elaborated with highly ornate columns, pilasters, pediments, cornices, enriched windows, and other appropriate adornment. Archways of 18 feet in width by 36 feet in height, opening through each of the four central pavilions, constitute



THE NEW PUBLIC BUILDINGS.



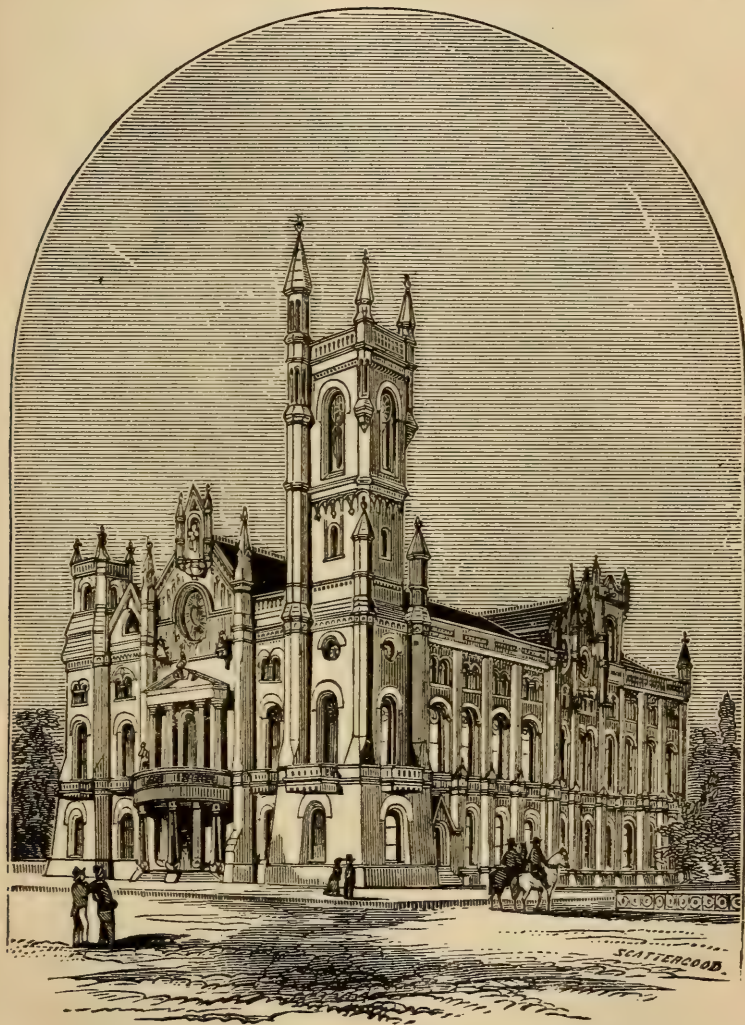
THE NATIONAL MUSEUM IN INDEPENDENCE HALL.

the four principal entrances, and at the same time afford passages for pedestrians up and down Broad and Market streets, directly through the buildings. The basement is 18 feet in height, and stands entirely above the line of the pavement. Its exterior is of fine white granite, of massive proportions, forming a fitting base for the vast superstructure it supports. The exterior, above the basement, embraces a principal story of 36 feet, and an upper story of 31 feet, with an attic over the central pavilions of 30 feet, and over the corner pavilions of 12 feet, all of white marble, from the Lee quarries, in Butler county, Massachusetts, wrought, in all its adornments, to express American ideas and develop American genius. In the centre of the group a court-yard of 200 feet square affords light and air to all the adjacent portions of the building. From the north side of this space rises a grand tower which will gracefully adorn the public buildings, and at the same time will be a crowning feature of the city, as St. Peter's is of Rome, and St. Paul's of London.

The tower, which is so deeply and strongly founded, is 90 feet square at the base, falling off at each story until it becomes, at the spring of the dome, an octagon of 50 feet in diameter. A statue of the founder of Pennsylvania, 20 feet in height, will crown the structure and complete the extraordinary altitude of 450 feet, making it the highest tower in the world. The entire structure will contain 520 rooms, giving ample, convenient, and stately provision for all the departments of the city government, including heat, light, and ventilation, and the whole is to be absolutely fire-proof and indestructible. The several stories will be reached by four large *elevators*, placed at the intersections of the leading corridors. In addition to these there will be large and convenient stairways in the four corner buildings, and a grand staircase in each of the centre pavilions, on the north, south, and east fronts. It is computed that the entire cost of the work will be near ten millions of dollars, and that it will be completed in ten years from the day when the first spadeful of earth was removed.

Opposite the northwest corner of the public buildings is the

School of Design for Women, the only institution of the kind in America. It was founded in 1848 by Mrs. Peter, and the work of the school consists in training women gratuitously in the business of mechanical drawing, and thus enabling them to acquire a pleasant and profitable means of support.



NEW MASONIC TEMPLE.

At the northeast corner of Broad and Filbert streets is the new

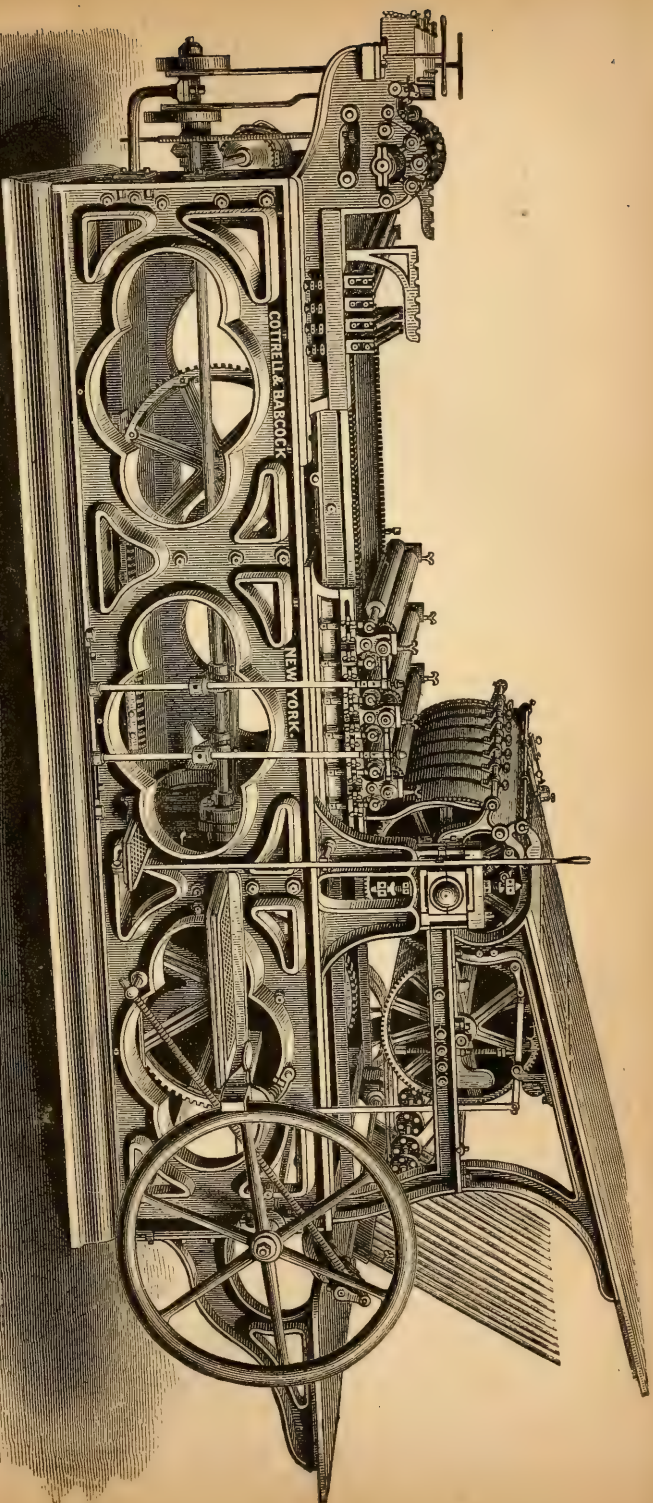
Masonic Temple,

A massive edifice of Cape Ann syenite of a grayish white color. At the southwestern corner a grand tower rises to a height of

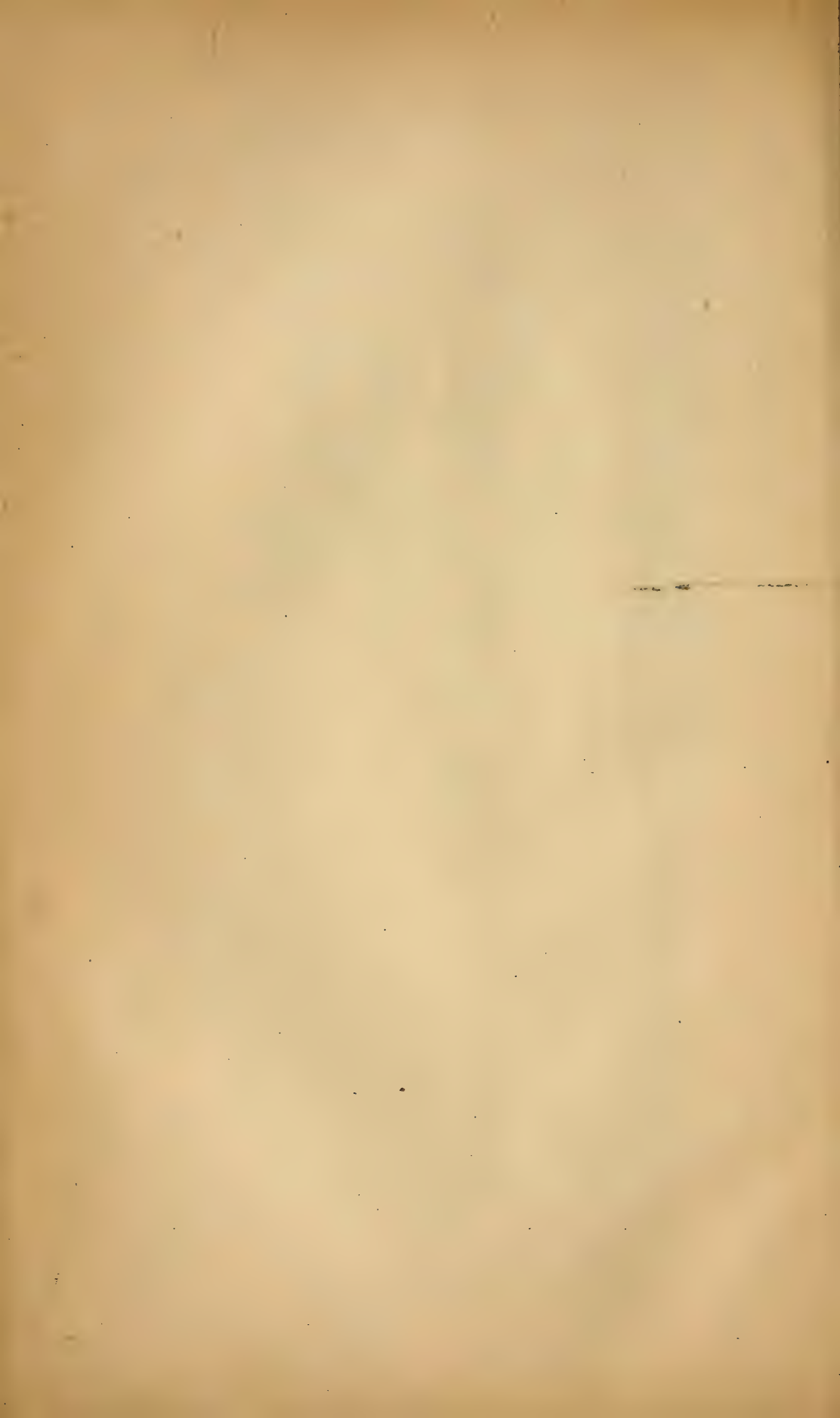
230 feet. It is built of stone also. At the northwestern corner there is another, but a lower, tower. The main entrance is in the centre of the western or Broad street front, and is protected by a beautiful Norman porch of Quincy granite. The temple is 150 feet in length, with a side elevation of 90 feet. Its appearance is massive and beautiful. All the stone of which it was built was dressed at the quarry, and was brought to the city ready to be set up in its place. It may, therefore, be said of this temple as it was of Solomon's, that "There was neither hammer nor ax, nor any tool of iron heard in the house, while it was in building." The temple is devoted entirely to Masonic purposes, and its interior decorations are very beautiful and costly. It is fitted up with halls for the different branches of the Masonic order, each hall representing a distinct school of architecture, and each a model of beauty and magnificence. The temple was five years in process of erection, and cost \$1,300,000.

The public buildings, the Masonic temple, and the churches at the intersection of Broad and Arch streets give to this portion of Broad street a magnificence unsurpassed in any city of the country, and in striking contrast with the appearance of the street north of Arch.

Crossing Arch street, the visitor enters upon a region of warehouses, shops, and lumber yards, which it is to be hoped will ere long give place to buildings more suited to this fine street. This state of affairs continues as far as Callowhill street. The only building of note in this part of the street is the new *Academy of Fine Arts*. The academy was founded in 1805 by the subscriptions of private citizens of Philadelphia. For many years it was located in a building on the site of the present Chestnut Street Theatre. In 1870 it was determined to remove to a larger and better building, and the present edifice was begun a year or two later. It is an elaborately ornamented building with a frontage of 100 feet on Broad street, and a depth of 258 feet on Cherry street. The Broad street front is two stories in height. The wall is laid in patterns of red and white brick, with light stone trimmings, and the ornaments consist of encaustic tiles, and statues of terra cotta. The effect



IMPROVED STOP CYLINDER PRESS, EXHIBITED IN MACHINERY HALL. These Presses were built by Cottrill & Babcock, for the NATIONAL PUBLISHING Co. They print fine illustrations better than any other Presses, and were used in printing this work.



is novel and rich. The Cherry street front is constructed of like materials. It is relieved by an elegant colonnade supporting a row of arched windows, back of which rises a transept with a pointed gable. The collections of the academy are the most valuable in the country, and among them are the masterpieces of Stuart, Sully, Neagle, Benjamin West, and other eminent artists. These are arranged in handsome galleries. The cost of the building was \$300,000. The galleries are open to the public at stated times. A slight admission fee is charged.

At Broad and Callowhill streets is the *Depot of the Philadelphia & Reading Railroad*. This road is one of the direct routes to the Centennial Exhibition grounds.

Diagonally opposite, immediately below Spring Garden street, are the *Baldwin Locomotive Works*, one of the largest establishments in the world. Three thousand men are employed here, and one locomotive is completed in every eight working hours. It is worthy of mention that Oliver Evans, a Philadelphian, was the first to propose the use of a locomotive in America, and that M. W. Baldwin, the founder of these works, was the first to manufacture one.

On the east side of Broad, above Spring Garden street, is the *Boys' Central High School*, above which rises an observatory. It is considered one of the best schools in the Union. Next door to it is the *North Broad Street Presbyterian Church*, a handsome edifice of brown-stone, with a lofty spire. The building next beyond it is the *Jewish Synagogue of Rodef Shalom*, a rich and striking specimen of Saracenic architecture. The interior is fitted up with great magnificence.

Above Green street the character of Broad street undergoes a change, and the visitor enters a region built up with some of the handsomest residences in the city. Some of these are magnificent, and all are elegant and tasteful. The street is bordered on each side with a row of fine trees, which add greatly to its beauty. It is a popular drive and promenade, and on Sunday afternoons and other fine days presents an animated and attractive scene. At the southwest corner of Master street is the

handsome residence formerly occupied by the late Edwin Forrest. It was erected by him in 1859. It is now used as a hotel.

Diagonally opposite the Forrest Mansion is the *Memorial Baptist Church*, built of green-stone, and in the form of an amphitheatre.

Above Columbia avenue the street is more sparsely built up, and by degrees the houses become more scattered, until the visitor finds himself in the charming suburb that lies between the city proper and Germantown.

Third Street.

From Market to Walnut, Third street is the "Wall street" of Philadelphia, and is given up to the bankers and brokers of the city. It is lined with banking establishments and brokers' offices, and its ways are as dark and its tricks as vain as those which have made the financial centre of New York famous. Fortunes are made and lost quickly here; and the street has witnessed some gigantic operations, and some tremendous failures in its day. North of Chestnut is the *Merchants' Bank*, with a fine Corinthian portico. Nearer to Chestnut, on the east side of the street, is the banking-house of Drexel & Co., the leading establishment of its kind in the city. It has branches in New York, London, and Paris. At the southeast corner of Third and Chestnut is the *Vandyke Building*, used by the Western Union Telegraph Company as its central office. One hundred and seventeen lines of telegraph radiate from this building to the different parts of the country: fifty-six to New York, eighteen to the West, and forty-three to the South. Lower down the street is the *Tradesmen's Bank*, a showy building; and at the corner of Dock street is the *Penn Building*, the first iron building erected in the city.

On the west side of Third street, between Chestnut and Walnut, is

The Girard Bank.

This is a handsome edifice, and is faced with white marble. It is ornamented with an elegant portico with fluted-marble



JAPANESE TEMPLE IN BRONZE, MAIN BUILDING.

Corinthian columns. On the pediment is an American eagle. The cornice and the pediment are of wood, and the capitals of the columns are of lead. The building was erected in 1795, and was then considered the handsomest public edifice in the city. It was built for and occupied by the First Bank of the United States, which had been chartered by Congress in 1791. The charter of the bank expired by limitation in 1811, and Congress refused to renew it.

Stephen Girard, the famous Philadelphia merchant, who had accumulated a large fortune by his ventures in the East India trade, was a warm friend of the bank, which he regarded as the cause of a very great part of the prosperity of the country. He was so sure that Congress would renew the charter that, in 1810, he ordered the Barings, of London, to invest all his funds in their hands in shares of the Bank of the United States. This was done to the amount of half a million of dollars. When the charter expired, he was the principal creditor of the bank. Discovering that he could purchase the old bank building and the cashier's house for \$120,000, he at once secured them, and on the 12th of May, 1812, opened the *Girard Bank* with a capital of \$1,200,000, which he increased the next year by \$100,000 more. He retained all the old officers of the Bank of the United States, and continued the cashier, Mr. George Simpson, in his position. He was greatly indebted to Mr. Simpson for the subsequent success of the bank. The breaking out of the second war with England, and the consequent suspension of specie payments, soon followed, and subjected his new enterprise to a severe strain. It was a matter of great doubt with Mr. Girard how he should preserve the integrity of his own institution, while the other banks were suspending their payments; but the credit of his own bank was effectually secured by the suggestion of his cashier, Mr. Simpson, who advised the recalling of his own notes by redeeming them with specie, and by paying out the notes of the State banks. In this way not a single note of his own was suffered to be depreciated, and he was thus enabled,

in 1817, to contribute effectually to the restoration of specie payments.

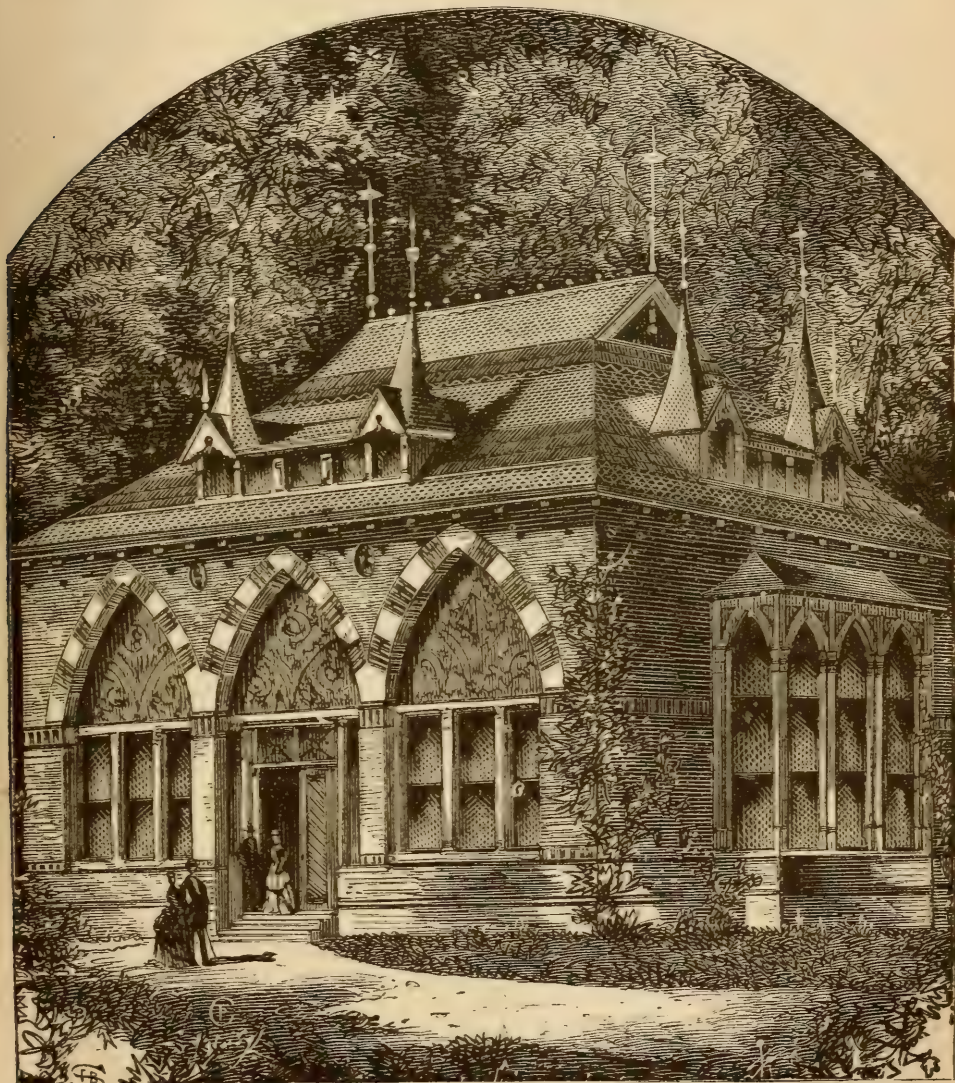
Mr. Girard was instrumental in securing the establishment of the Second Bank of the United States, and was its largest stockholder and one of its directors. When the books were opened for subscriptions to the stock of the bank, he waited until the last moment before the books were to be closed, and then came forward, and asked if all had subscribed who wished to do so. Being answered affirmatively, he asked how much of the capital remained uncalled for. He was told \$3,100,000. To the surprise of all present, he said he would subscribe for that entire amount. At his death the capital of his own bank had increased to \$4,000,000. By the terms of his will his bank-building became the property of the city of Philadelphia. In 1833 the Girard Bank was chartered by the State, and began business in a portion of this building, which it still occupies, having, since 1864, become a national bank. The rest of the building is now occupied by the offices of the city treasurer and city controller.

Immediately above the bank is the old banking-house of Jay Cooke & Co., whose failure a few years ago occasioned a heavy loss to the entire country.

On the east side of Third below Walnut is the handsome light stone building of the *Lehigh Valley Railroad Company*. Almost immediately opposite is *St. Paul's Episcopal Church*, a venerable structure, erected in 1760, by a number of the congregation of old Christ Church, who had withdrawn from that parish because of the dismissal of the Rev. Dr. McClenaghan "without sufficient cause." The church is rough-cast, and stands in a spacious enclosure, in the midst of long ranges of vaults covered with marble slabs. Edwin Forrest, the tragedian, is buried in one of these.

At the southwest corner of Third and Pine streets is an old grave-yard, in the midst of which stands *St. Peter's Episcopal Church*. It was begun in 1758 and was finished in 1761. It was originally designed as, and was for many years, a chapel of Christ Church, by the congregation of which it was built. Dur-

ing the Revolution it was occupied by the British when they held the city, and was greatly damaged by them. In 1831 St. Peter's was separated from Christ Church, and was made an inde-



AVIARY, ZOOLOGICAL GARDENS.

pendent parish. The steeple is much more modern than the church. It is furnished with a chime of bells, the gift of a Mr. Wilcox, once a wealthy merchant of the city and a member of the congregation.

CHAPTER III.

PHILADELPHIA IN 1876—CONCLUDED.

Steam Railroads—Their Depots and Ticket Offices—Steamship Lines—The Philadelphia Markets—Prominent Churches—Cathedral—The oldest Presbyterian and Roman Catholic Churches—The old Swedes' Church—The Public Schools—University of Pennsylvania—The Medical Colleges—Girard College—The Philadelphia Library—Mercantile Library—Ridgway Library—Academy of Natural Sciences—Learned Societies—The Zoological Gardens—Benevolent Institutions—The Pennsylvania Hospital—Insane Asylum—Naval Asylum—Prisons—House of Correction—Places of Amusement—Cemeteries—Newspapers—Banks—Gas and Water—Street Railways—The Water Front—The Delaware Shore—Port Richmond—The Coal Wharves—Ship Yards—Camden—Smith's and Windmill Islands—Docks of the Pennsylvania Railroad—The American Steamship Line—The Old Navy Yard—Greenwich Point—League Island—The Navy Yard—Fort Mifflin—A Reminiscence of the Revolution—The Schuylkill River—The Bridges—The Fairmount and Girard Avenue Bridges—The finest Bridge in America—West Philadelphia—Germantown—Manufactures and Commerce.

THERE are eight lines of railway entering the city of Philadelphia, or terminating at Camden, on the opposite shore of the Delaware. These are as follows:

The Pennsylvania Railroad, the depots of which are at Thirty-second and Market streets, in West Philadelphia, and at Kensington. The ticket offices of this road are located at the depot, and at 838 Chestnut street, 1348 Chestnut street, and 116 Market street. From the Kensington depot local trains run to points between Philadelphia and Trenton. The West Philadelphia depot is the arriving and starting point of trains from and to the West and New York. The old line of the Camden and Amboy road, now leased by the Pennsylvania Company, lies entirely in New Jersey, and the terminus is in Camden. The Market Street Ferry connects with it. It

is the line to New York by way of Amboy, and to points in New Jersey.

The Philadelphia and Reading Railroad. The depots of this road are at Thirteenth and Callowhill, and at Ninth and Green streets. The ticket offices are at 838, 624 and 732 Chestnut street, 317 Arch street, and at the depots. The Thirteenth street depot is the station for the main line to Reading and the anthracite coal regions. The Ninth and Green streets depot is the station for points on the Germantown and Norristown branches.

The North Pennsylvania Railroad. The depot of this road is at Berks and American streets. It is a direct line to Bethlehem, Lehigh Valley, and the North and West. A branch of this road has just been constructed, connecting with the Central Railroad of New Jersey, at Bound Brook. It forms with that road a direct line to New York, and passengers over it enter that city by the New Jersey Central Ferry, at the foot of Liberty street.

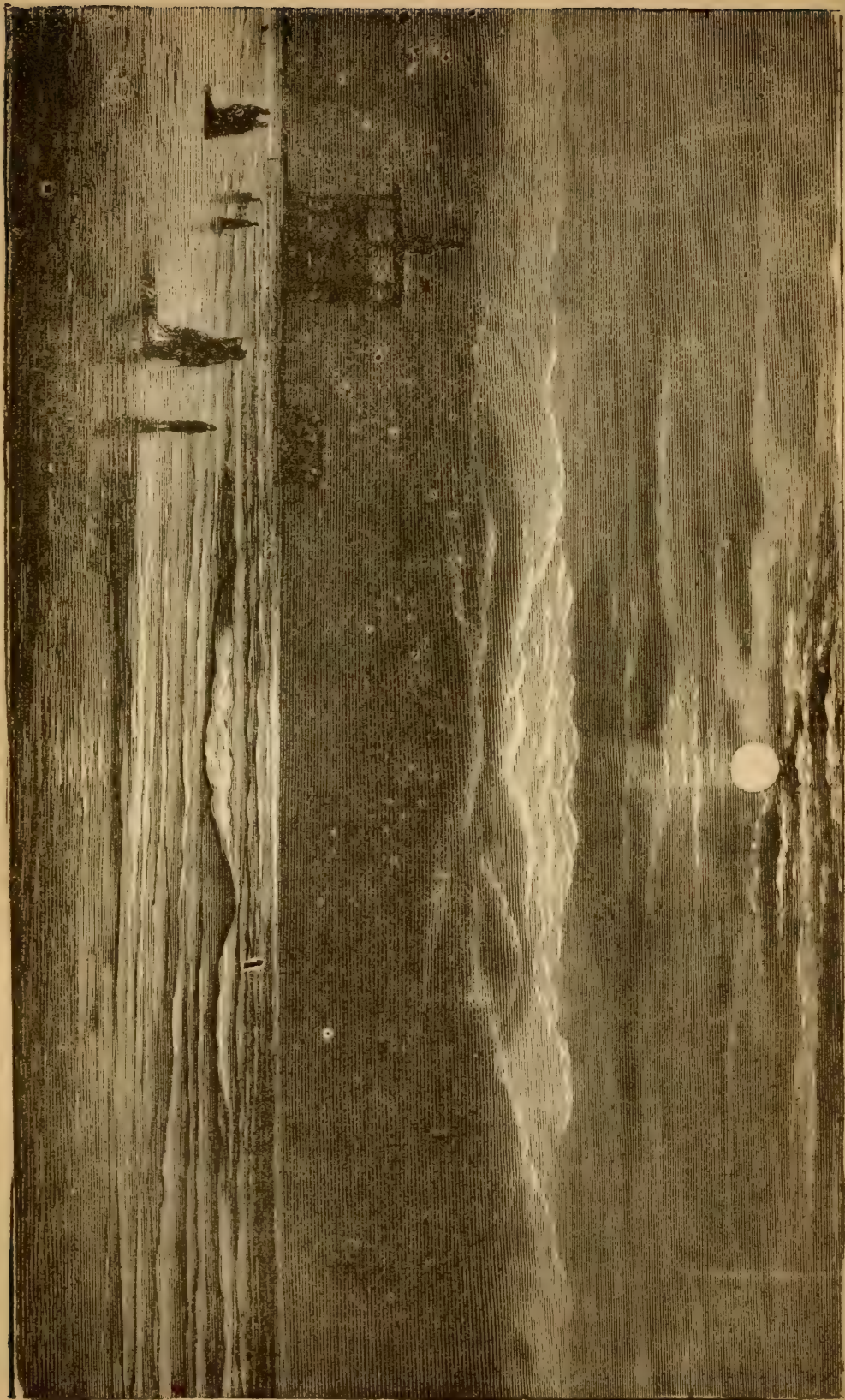
The Philadelphia, Wilmington and Baltimore Railroad. The depot of this road is on South Broad street, at the corner of Washington avenue. It is the only direct line from Philadelphia to Baltimore, Washington, and the South. It is also the route from Philadelphia to the West by way of the Baltimore and Ohio Railroad, connection with which is made at Baltimore. The ticket offices of the road are at the depot, and at 700 and 838 Chestnut street.

The West Chester Railroad. The depot of this road is at 3100 Chestnut street, in West Philadelphia, and its only ticket office at the same place. The road extends to West Chester.

The New Jersey Southern Railroad. The depot of this road is in Camden. The Market Street Ferry connects with it. The ticket offices are at 700 and 838 Chestnut street. It is a direct line to Long Branch, Ocean Grove, and Sandy Hook, on the New Jersey coast. From the latter point connection is made with a steamer to New York.

The Camden and Atlantic Railroad. This is the line to Atlantic City, on the New Jersey coast, the nearest and most

MOONLIGHT ON THE BEACH AT CAPE MAY—BRANCH OF THE PENNSYLVANIA RAILROAD.



accessible sea-shore resort from Philadelphia. Atlantic City has long been famous as the best sea-bathing point on the coast, and is always crowded during the summer season with a brilliant and fashionable throng of visitors, in search of health and pleasure. Its proximity to Philadelphia—being only an hour and three-quarters distant—and the admirable facilities for reaching it afforded by the numerous fast trains between the two points, will enable visitors to the Centennial Exhibition to spend a day or two at the sea-shore, and enjoy “a dip in the ocean,” without trespassing upon the time set apart for their summer vacation. The depot is at the foot of Vine street. The ticket offices are at 838 and 1348 Chestnut street, and at the depot.

The West Jersey Railroad. This line extends to Cape May, and to points in Western New Jersey, on the Delaware Bay. The depot is in Camden, and passengers are conveyed to it by the Market Street Ferry. The ticket offices are at 838 and 1348 Chestnut street. The road is controlled by the Pennsylvania Company.

Passengers over any of these lines can procure their tickets, secure berths in sleeping-cars, and have their baggage checked and called for at their residences or hotels, at any of the city ticket offices named above, thus saving themselves all trouble at the depot at the moment of departure.

Steamship Lines.

There are two steamship lines plying regularly between Philadelphia and European ports. These are the *American Steamship Company*, the splendid vessels of which have become noted as among the best and most comfortable on the ocean. The sailings of this line are weekly. It is a strictly American corporation, and the only one for this purpose in existence. Its success has been marked from the start. The *International Steamship Company*, or *Red Star Line*, plying between Philadelphia and Antwerp, despatch their vessels fortnightly. Philadelphia is connected with the principal ports on the Atlantic coast by steamship lines, which transact a steady and profitable

business. The various European steamship lines sailing from New York have offices in Philadelphia.

Markets.

The markets of Philadelphia are among the institutions of the city. In them are collected the vegetable products of the North, South, East and West. It is the boast of the city that the provisions to be had here are always fresh and at moderate prices. Meats of all kinds, poultry, fish, eggs, butter, vegetables and fruits, are displayed in the greatest profusion and in the most tempting manner. The old sheds which formerly disfigured the streets of the city are giving way to handsome and commodious edifices of brick. At the corner of Market and Twelfth streets, and on Fifth street near Chestnut, are two of the finest market-houses in the city. They are well worth a visit.

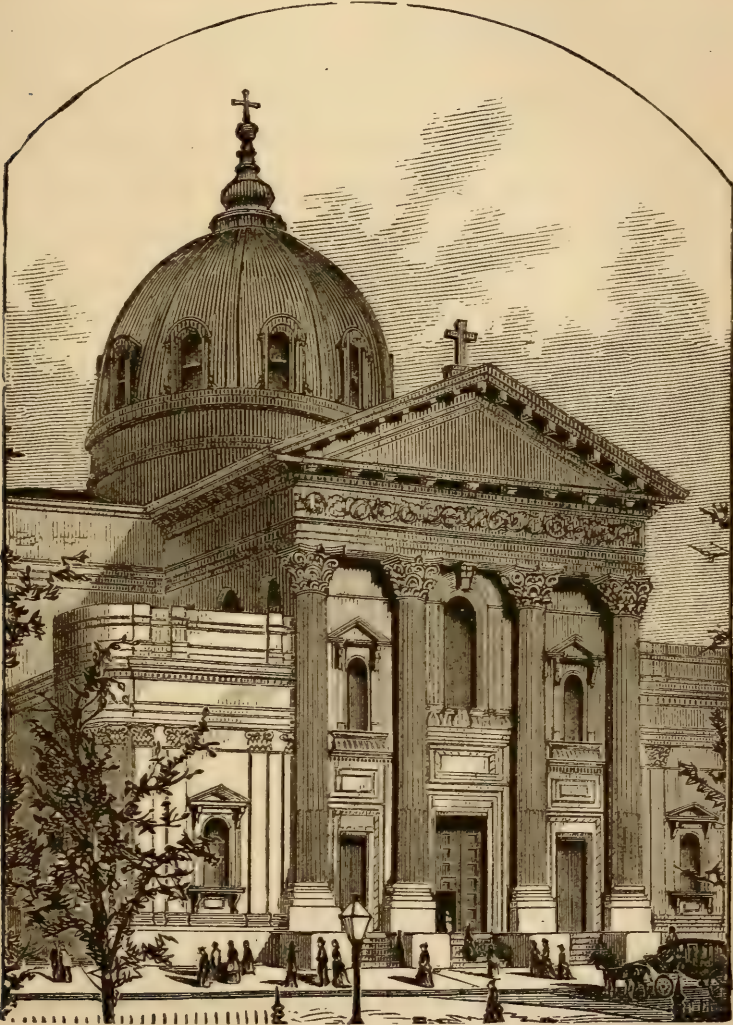
Churches.

A number of the most prominent churches of the city have been noticed in our description of the principal streets. A few remain to be mentioned.

The *Cathedral of St. Peter and St. Paul*, situated on Eighteenth street, facing Logan Square, is one of the most elaborate religious edifices in the city. It is the principal church of the Roman Catholic denomination, and a conspicuous object in any view of the city. The Most Rev. Francis Patrick Kenrick, D. D., afterwards Archbishop of Baltimore, was Bishop of the Diocese of Philadelphia from 1842 to 1851. Soon after his entrance upon his office, he inaugurated the movement for the erection of a new Cathedral, and fixed upon the Logan Square site as the proper place for it. The site was opposed by the clergy and many of the laity as too remote from the centre of the city; but the Bishop, who had an abiding faith in the growth of Philadelphia, carried his point, and on the 6th of September, 1846, the corner-stone of the Cathedral was laid. In 1857 Bishop Kenrick was promoted to the Archdiocese of Baltimore, and was succeeded by Bishop Wood, under whom the work was completed. It was dedicated with imposing

ceremonies in 1864. The architects were Napoleon Le Brun and John Notman.

The building is of stone, and is built in the form of a cross, with a massive portico and a grand dome. It has a frontage of 136 feet, and a depth of 216 feet. The height of the apex of the



CATHEDRAL OF ST. PETER AND ST. PAUL.

pediment from the pavement is $101\frac{1}{2}$ feet, the height of the dome is over 210 feet, and its exterior diameter is seventy-one feet. The architecture is of the most elaborate Roman Corinthian style. There are no side windows—a feature in which the church differs from most of the buildings in this country—the

light being introduced almost wholly from above. The façade is ornamented with a portico supported by four immense Corinthian capitals, sixty feet high, and six feet in diameter. On the frieze of the pediment are cut the words "Ad Majorem Dei Gloriam." The interior of the building is cruciform, and is finished in a light stone which greatly resembles Paris stone, the effect of which is striking. The walls are frescoed with a fine painting of the Crucifixion, the Nativity, and the Adoration of the Shepherds, and with figures of the four Evangelists. The crown of the dome is adorned with a painting representing the Assumption of the Blessed Virgin. The high altar and the various shrines of the church are constructed of marble, and are adorned with great magnificence. The interior is thus rendered one of the richest and most beautiful in this country, and will bear comparison with many of the churches of Europe. The cost of the whole edifice was over \$1,000,000. Adjoining the Cathedral are the chapel, used for early and week-day services, and the residence of the Bishop.

Immediately opposite the southern entrance to Washington Square is

The First Presbyterian Church.

This congregation was for many years regarded as the oldest Presbyterian congregation in America, but in 1835 it was discovered that an older congregation existed at Rehoboth, on the Eastern Shore of Maryland. The records of the church go back to 1698, in which year the congregation was worshipping with the Baptists in their church on "Barbadoes lot," at the northwest corner of Chestnut and Second streets. The present building was erected in 1820. From 1830 to 1868 the church was under the pastoral care of the Rev. Albert Barnes, whose literary labors are too well known to the reader to need mention here.

St. Joseph's Church,

The oldest Roman Catholic church in Philadelphia, is situated in Fourth street just below Walnut, near the building of the Reading Railroad Company. In 1733 several Jesuit fathers purchased the lot on which it stands, and erected a plain wooden



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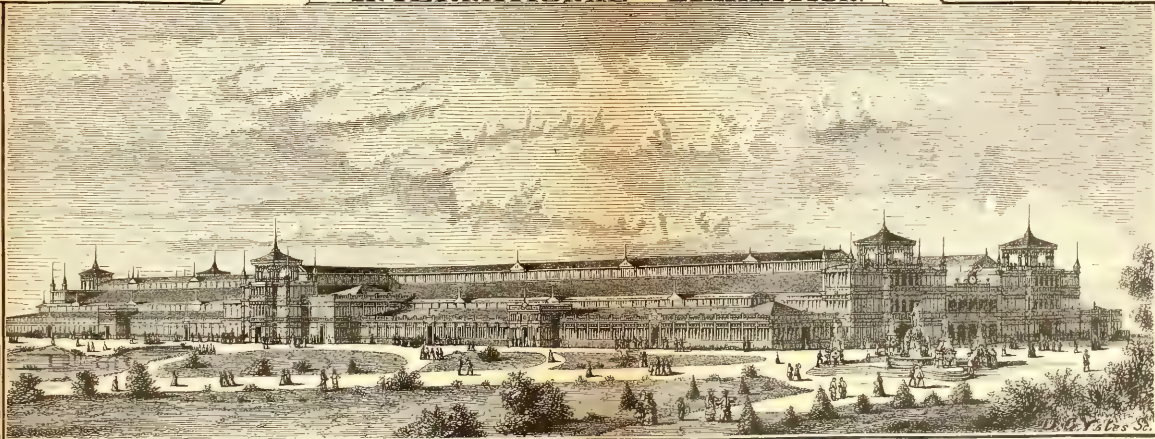
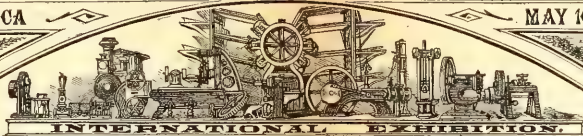
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PHILADELPHIA U.S. AMERICA

MAY 10TH TO NOVEMBER 10TH 1876



1776

MACHINERY HALL.

1876

MACHINERY HALL—INTERNATIONAL EXHIBITION.

1402 feet in length and 360 feet in width.

edifice. This was pulled down by the soldiers by order of the colonial authorities, was rebuilt, and pulled down a second time. A third time the church was erected, and once more the soldiers came to destroy it. This time the fathers interposed the plea that the building was their dwelling, as well as a church, and that as such they were entitled to hold it. The plea was suc-



GETHSEMANE BAPTIST CHURCH.

cessful, and the house was spared. The old church stood until 1821, when it was remodelled and enlarged. Washington and the Continental Congress assembled here in it, at the close of the Revolution, to return to France, through Lafayette, the thanks of the country for her aid in the Revolution. The present structure was erected in 1838.

At the corner of Fourth and Pine streets is

The Third Presbyterian Church,

Generally called "The Old Pine Church." It was organized in 1760 by a number of families who withdrew from the First Church, and in 1764 a small frame building was erected on this lot, which was obtained from Thomas and Richard Penn. The present church was begun in 1766 and completed in 1768. During the sessions of the Continental Congress, John Adams was one of its most constant attendants. During the occupation of the city by the British, the church was used as a hospital for the troops. It was stripped of its pulpit and pews for fuel, and was then converted into a stable for the horses of the dragoons. Among the graves in the churchyard is that of David Rittenhouse, famous as a mathematician, and a signer of the Declaration of Independence.

In Swanson street near Christian is the most venerable edifice in the city, the

Gloria Dei, or Swedes' Church.

It was built by the Swedes, who settled the site of Philadelphia in 1637, more than forty years before the arrival of Penn's colony. The first settlers were very poor, and at first sheltered themselves in caves which they dug in the banks of the river. A year or two later they built log huts on the plateau beyond the river. "They were a kindly, though hot-tempered folk, too; gave their open hand to the English, who asked leave to settle on the land, and shut it against the Dutch, who claimed the land as a right. . . Nothing can be more pathetic than the letters which they sent to old Sweden by every chance voyager to Europe, setting forth that they were in a strange and heathen land, far away from their own dear fatherland, and begging that 'godly men might be sent to them to instruct their children, and help themselves to lead lives well pleasing to God.' It was six years before the letter was answered by the arrival of Rudman and Bjork, the first clergymen sent out by the Swedish king. . . Immediately after the arrival of Rudman and Bjork, Gloria Dei Church, known now in Philadelphia as

old Swedes', was built. It stood upon a green bank of the quiet river, Swan Swanson's being the only hut near by. On Sunday mornings the men came tramping on foot beside the women's horses from Kingsessing, Passajungh, and even far-away Matzongh, hanging their muddied outer leggings or shirts of wolfskin on the branches of the trees before they went



THE OLD SWEDES' CHURCH.

in. Now and then a pirogue brought a chance worshipper up the lonely river, or a solitary Indian stood in the doorway, half believing, and wholly afraid. . . The church itself was built in a fervor of pious zeal, the carpenters and masons giving their work, and the good pastor, Erick Bjork, selling or pawning the best articles out of his house when the money did not come in

fast enough, and carrying the hod every day himself." The original church was built of logs, and served as a blockhouse as well as a place of worship. It was built in 1677. The present edifice was erected on the same site in 1700. It is built of brick, and is cruciform. The interior is quaint, and the gallery front is ornamented with wooden cherubim brought over from Sweden. In the churchyard lies buried Alexander Wilson, the ornithologist. It may be added here that William Penn scrupulously respected the rights of the Swedish settlers, and purchased from them the site upon which he founded his city of Philadelphia.

On the north side of Locust above Sixteenth street is

St. Mark's Episcopal Church.

It was erected in 1849, is built in the decorative Gothic style, and is considered one of the most beautiful and gracefully proportioned churches in the city. It is built of freestone, so nicely laid that no trace of mortar can be seen. It is 150 feet in length, with a breadth, including the tower, of 91 feet. The tower is a massive structure of stone, supporting a spire which rises to a height of 230 feet from the ground. The interior is very beautiful, and its stained glass windows are among the finest in the country. The church is the property of one of the wealthiest congregations in the city, and its services are grand and impressive.

St. Clement's Church, at the corner of Twentieth and Cherry streets, is a handsome edifice, richly decorated within. It is an Episcopal church, and is noted as the most extreme ritualistic establishment in the city.

On the east side of Fourth street, just below New, is

St. George's Methodist Episcopal Church,

The oldest Methodist church in the city. Methodism was established in Philadelphia in 1767 by Captain Thomas Webb, who held his meetings in a sail-loft near Dock and Front streets. He succeeded in forming the germ of the present congregation. In 1769 Richard Boardman and Joseph Pillmore were sent

over by John Wesley to take charge of the Philadelphia church. They preached in the present building, which had just been erected, and was known as "Our Preaching House." Francis Asbury, afterwards the great bishop, named it *St. George's*, in 1781. In March, 1770, the first love-feast held in America was held here. During the Revolution the British occupied the church as a riding-school. The church has had among its pastors four who became bishops in the Methodist Episcopal



CENTRAL CONGREGATIONAL CHURCH.

Church. They were Francis Asbury, Richard Whatcoat, Robert R. Roberts, and Levi Scott.

The *Central Congregational Church*, on Eighteenth street, at Eighteenth and Green streets, is a handsome edifice, in the late Norman style, erected at a cost of \$100,000.

St. Peter's Roman Catholic Church is at the corner of Girard avenue and Fifth street. It is a large and handsome structure, with a tower 215 feet high. It will seat 2000 persons. The

congregation is the largest and wealthiest in the diocese of Philadelphia.

There are in all over five hundred churches in the city of Philadelphia. They are divided as follows among the different denominations :

DENOMINATION	Number of Churches.
Advent Christian Church.....	3
Baptist.....	63
Bible Christians.....	1
Christian Evangelist.....	1
Christian Independent.....	2
Church of God.....	1
Congregational.....	2
Disciples of Christ.....	2
Evangelical Association.....	8
French Protestant Episcopal.....	1
Friends (Orthodox).....	6
“ (Hicksite).....	8
“ (Primitive).....	1
Hebrews.....	11
Lutheran (English).....	14
“ (German).....	12
“ (Independent).....	2
Mennonite.....	3
Methodist Episcopal.....	89
“ “ African.....	9
Methodist (Free).....	1
Moravian.....	4
New Church (Swedenborgian).....	3
Presbyterian.....	75
“ (Reformed Synod).....	3
“ “ (Original).....	1
“ “ (General Synod).....	8
“ (United).....	12
Protestant Episcopal.....	90
Reformed Episcopal.....	3
“ Church in the United States.....	16
Roman Catholic.....	43
Unitarian.....	2
Universalist.....	3
Total.....	503

Educational Establishments.

The public schools of Philadelphia have long been famous for their excellence. In the year 1872 there were 396 school-houses in the city; and 78 male and 1552 female teachers. The whole number of pupils belonging to the schools at the close of the year was 84,387, and the average attendance during the year 72,025. The whole amount paid for salaries of teachers was \$900,819; the whole amount paid for school purposes was \$1,576,199. There were also 29 night-schools, attended by 8,587 pupils.

The private schools and academies are numerous and well attended.

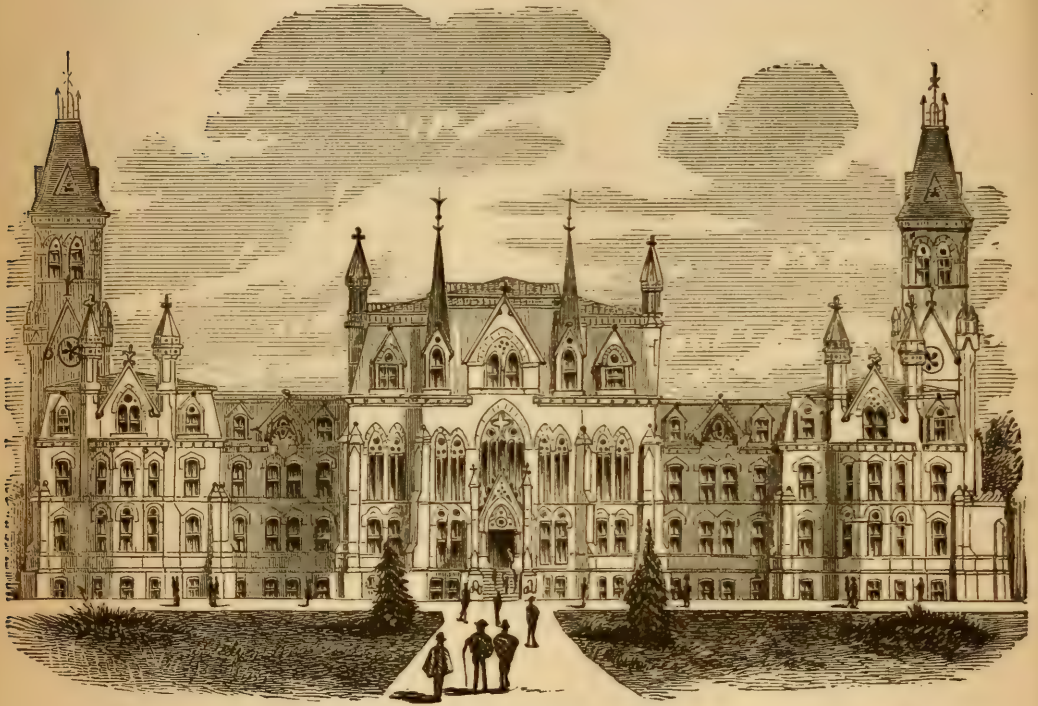
There are thirteen colleges in the city. The principal of these is the

University of Pennsylvania.

This noble institution grew out of the Philadelphia Academy, founded by Benjamin Franklin. It consists of four departments or schools, namely: the Academical, the Collegiate, the Medical, and the Law Schools.

The University buildings are located in West Philadelphia, at the junction of Thirty-sixth street, the Darby road, and Locust street. The University buildings are constructed of serpentine stone, with the coping, buttresses, and gables of Ohio stone. When all are erected they will comprise a complete square of Gothic structures, unsurpassed in beauty and convenience by any in the world devoted to similar purposes. The buildings at present comprise the Schools of Arts and Science, the Medical School, and the Hospital attached to the Medical School. The School of Arts and Science is an imposing structure, three stories in height beside the basement. It has a frontage of 260 feet on Locust street, and a depth of 120 feet. Its pavilions and towers give to it a beautiful and picturesque appearance. The Medical School, though it possesses distinct architectural features of its own, follows the general design. It is fitted up with every convenience for the successful prosecution of the studies and investigations of the students. The Hospital

is situated to the south of the School of Arts and Science, and stands in a lot given to the University by the city on condition of its maintaining fifty free beds for poor patients. The Law School is located in the first building mentioned.



UNIVERSITY OF PENNSYLVANIA.

The University is in a flourishing condition, and the faculty includes in its number some of the most eminent men in the Union.

Jefferson Medical College

Is situated in Tenth street below Chestnut. It was established in 1825, and was at first a branch of the medical college at Cannonsburg, Pa. It owes its existence principally to the exertions of Dr. George McClellan. It soon attracted to its faculty the most eminent physicians of the city. Its success was rapid, and it has long been considered one of the first medical schools in America. Its graduates are to be found in every part of the Union. The college building is a handsome structure, and is fitted up with all the appliances of a first-class institution.

The *Homœopathic Medical College* is situated on the north side of Filbert street, above Eleventh. Attached to it is a large and well-conducted hospital. The college is regarded as one of the best schools of this branch of medicine in existence.

The *College of Pharmacy* is on the east side of Tenth street below Race. It was founded in 1821, and is designed for the education of chemists and apothecaries. Thanks to its efforts the drug business of the country has been placed mainly in the hands of educated pharmacutists.

The College of Physicians

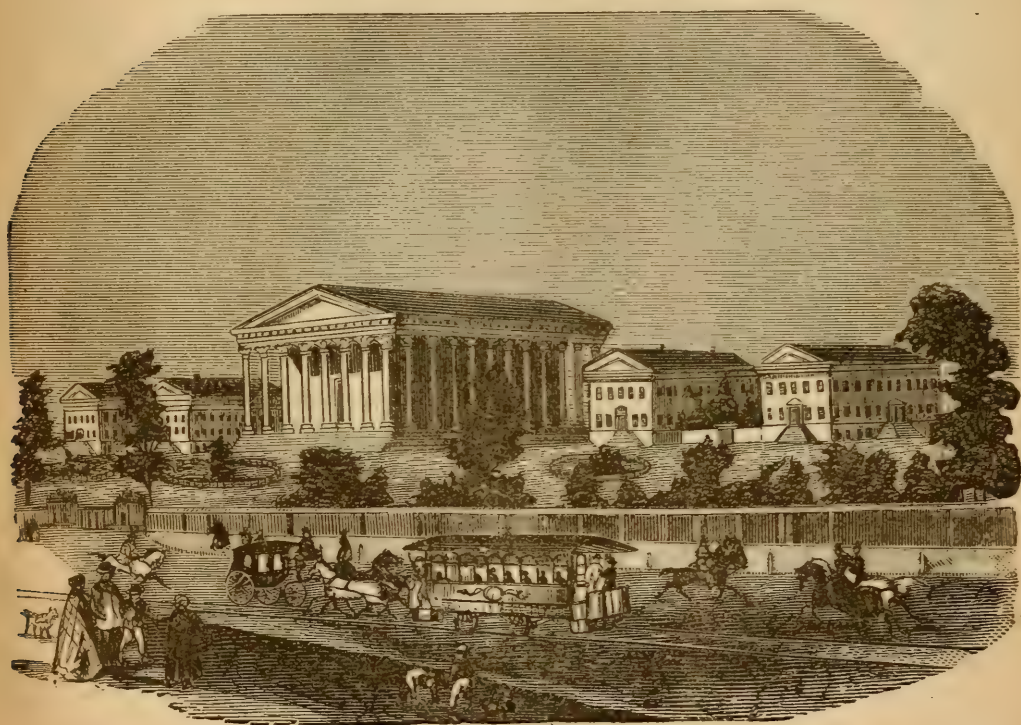
Is located at the northeast corner of Thirteenth and Locust streets. It was founded in 1789. Its members are practising physicians, and its object is the investigation of "the diseases and remedies which are peculiar to this country." The members are divided into two classes: Fellows, or practising physicians residing in the city; and Associates, who are eminent physicians in other parts of the country. The college publishes a quarterly journal of its transactions, which is highly valued by the profession. Its transactions are of the greatest benefit to the sciences of medicine and surgery.

Girard College

Was erected through the munificence of Stephen Girard, whose name it bears. The college grounds consist of a tract of forty-five acres, fronting on Ridge avenue about a mile from its junction with Ninth and Vine streets. The grounds are enclosed with a high stone wall, capped with marble slabs, and strengthened with pilasters. By the terms of his will, Mr. Girard left the sum of six millions of dollars to trustees for the purpose of founding and maintaining a college for the free education and support of white male orphans. The cost of the buildings for the purposes of the college was limited to two millions of dollars. Up to the present time the sum of \$1,933,821 has been expended upon the buildings and grounds. The rest of the vast legacy was to be kept as a fund for the support of the college, the interest only being used. The trustees in a recent

report state that if the residuary estate is properly managed, "it will soon be ample to maintain as many orphans as the entire plot of ground can accommodate." The number of pupils in the college at present is about 500, and the sum of \$190,000 is annually expended in their support. Since its foundation, the college has received as pupils 1800 poor, fatherless boys, and has indentured 780 of them to honest and profitable trades.

The grounds are handsomely laid out and carefully kept. The main entrance is through a tasteful lodge in the south front.



GIRARD COLLEGE.

The college proper is one of the handsomest structures in the United States. It is constructed of pure white marble, and the general design is that of a Greek temple, surrounded with a range of magnificent Corinthian columns, having eight at each end, and eleven on each side, including those at the corners. The building rests upon a basement consisting of eleven steps, which extend around the entire edifice, thus giving to it an air of greater solidity and splendor. The building has a length



PRINCIPAL DEPOT OF THE PENNSYLVANIA RAILROAD, WEST PHILADELPHIA.

of 169 feet and a width of 111 feet, with a wide platform between the outer walls and the ranges of columns. The architecture is of the purest Corinthian order, and is one of the most perfect specimens of Grecian architecture in America. The columns are 55 feet high, 10 feet in diameter at the base, and are surmounted by capitals 8 feet 6 inches high. The distance from the top of the capitals to the apex of the pediment is 34 feet, making the total height from the apex of the pediment to the floor of the platform on which the superstructure stands nearly 95 feet. The principal entrances are in the north and south fronts, and are 32 feet high, and 16 feet wide. Each side contains twenty windows, four of which open into each room, and one upon each stairway. The building is floored with marble, and the roof is constructed of the same material and weighs 969½ tons. The building is divided into three stories, and is used entirely for lecture and recitation purposes. The interior work is done entirely in marble, iron, and brick, but not a trace of the last material is anywhere visible to the eye.

A marble statue of Stephen Girard, by Grevelot, stands in the south porch of the college, and beneath it lie the remains of the founder, and a room in the building known as "Girard's Room" contains his books, office furniture, and personal effects.

A number of fine marble buildings, roofed with copper, stand in the college grounds. They are each three stories in height, with a frontage of 52 feet and a depth of 125 feet, and are used as the residences of the college officers and the dormitories of the pupils.

Mr. Girard's will contained the following restrictions upon visitors to the college, which are rigidly enforced. The italics are his own:

"I enjoin and require that *no ecclesiastic, missionary, or minister of any sect whatsoever, shall hold or exercise any station or duty whatever in the said college: nor shall any such person ever be admitted for any purpose, or as a visitor, within the premises appropriated to the purposes of the said college.* In making this restriction, I do not mean to cast any reflection upon any sect or person whatsoever; but as there is such a multitude of sects,

and such a diversity of opinion amongst them, I desire to keep the tender minds of the orphans, who are to derive advantage from this bequest, free from the excitement which clashing doctrines and sectarian controversy are so apt to produce; and my desire is, that all the instructors and teachers in the college shall take pains to instil into the minds of the scholars *the purest principles of morality*, so that, on their entrance into active life, they may, *from inclination and habit*, evince *benevolence towards their fellow-creatures*, and *a love of truth, sobriety, and industry*, adopting at the same time such religious tenets as their *matured reason* may enable them to prefer."

"When Mr. Duane had written this passage at Girard's dictation," says Mr. Parton, "a conversation occurred between them, which revealed, perhaps, one of the old gentleman's reasons for inserting it. 'What do you think of that?' asked Girard. Mr. Duane being unprepared to comment on such an unexpected injunction, replied, after a long pause, 'I can only say now, Mr. Girard, that I think it will make a great sensation.' Girard then said, 'I can tell you something else it will do,—it will please the Quakers.' He gave another proof of his regard for the Quakers by naming three of them as executors of his will; the whole number of the executors being five."

The *Pennsylvania College of Dental Surgery* is located at Tenth and Arch streets, and the *Philadelphia Dental College* at 108 North Tenth street. Both are flourishing institutions. The *Woman's Medical College of Pennsylvania* is at Twenty-first and North College avenue. The *Polytechnic College of the State of Pennsylvania* is on Market street above Seventeenth.

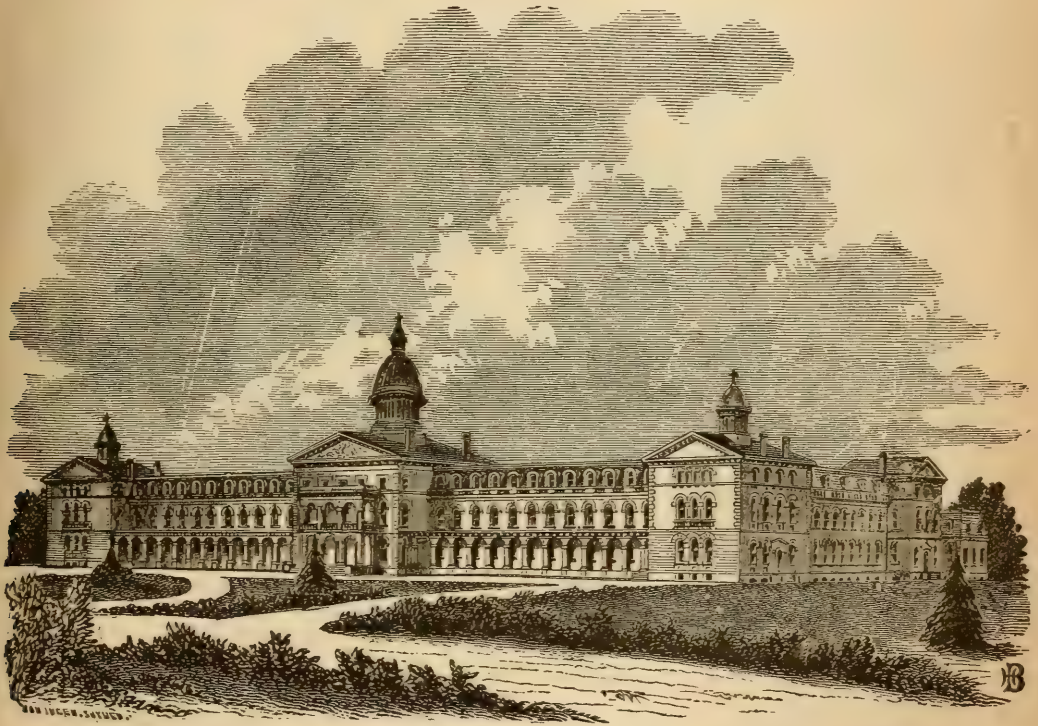
The church institutions are the *Academy of the Protestant Episcopal Church*, at Locust and Juniper streets; the *Theological Seminary of the Evangelical Lutheran Church*, at No. 216 Franklin street; *St. Joseph's* (Roman Catholic) *College*, at 317 Willing's alley; and the *Seminary of St. Charles Borromeo*, at Overbrook station on the Pennsylvania Railroad, just beyond Hestonville. The building of the last-named institution is a magnificent specimen of the Italian style of architecture.

LIBRARIES.

The principal library of the city is the

Philadelphia Library.

It was founded in 1731, by Benjamin Franklin, Thomas Hopkinson, Thomas Cadwallader, and several other gentlemen, Franklin being the principal mover in the matter. James Logan became interested in the enterprise at an early day, and instructed Mr. Hopkinson, who was about to sail for England, to purchase books to the value of £65. This was done, and the books were



SEMINARY OF ST. CHARLES BORRAMEO.

received in 1732. The library was made free to the public, but none but subscribers, with the exception of Mr. Logan, were allowed to take the books from the building. This rule is still observed. The library grew slowly, and in 1782 the heirs of James Logan presented the trustees with the valuable *Loganian Library*, which is still kept as a separate collection. The two collections now number about 100,000 volumes. The library

is located in a stately and substantial old-time edifice of brick, in Fifth street south of Chestnut, and opposite Independence Square. The building was begun in 1789, and was completed and occupied by the library in 1790.

The Mercantile Library

Occupies a handsome building in Tenth street north of Chestnut. It was organized in 1821 by a number of merchants and bankers, and in 1826 was made a stock company. The building used by the company was formerly the Franklin Market, and cost, with



MERCANTILE LIBRARY.

the alterations necessary to adapt it to its new use, \$230,000. It contains a fine collection of 95,000 volumes and all the principal newspapers and magazines of this country and Europe. It has also a chess-room with twenty-four tables. It is managed upon the most liberal plan, and has a membership of 12,000.

The Ridgway Branch of the Philadelphia Library.

The building now in course of erection for this purpose is one of the most superb structures in the United States. It stands

in the centre of the square, bounded by Broad, Thirteenth, Christian, and Carpenter streets. This is enclosed by a stone wall, except on the Broad street front, where the wall gives place to a tasteful iron railing. The grounds are to be laid off in the most beautiful manner. The building is of granite, and consists of a central edifice and two wings, the whole having a frontage of 220 feet, and an extreme depth of 105 feet. The principal façade faces Broad street, and consists of three porticos, one to the central building and one to each of the wings. The porticos are enclosed by massive Doric columns of granite, sixteen in all, eight in the central portico, and four to each of the wings, each thirty feet high. The structure stands upon a platform which is reached by a flight of steps the full width of the central building. The main entrance is from the central portico, and leads into a vestibule 36 feet long, 10 feet wide, and 14 feet high, which opens into the main hall. This hall is cruciform, 84 feet in length, and 60 feet in width. At the intersection of the cross are twenty-four Ionic columns supporting a gallery. The ceiling in this part of the hall is 44 feet from the floor. The main hall will be fitted up with alcoves for books. There are several other rooms in the building, intended for the use of the directors, etc. The wings will be used as reading-rooms. A mausoleum will be erected in the main hall opposite the principal entrance, to contain the remains of the late Dr. Benjamin Rush and his wife. The building owes its existence to the munificence of Dr. Rush, who at his death bequeathed the land on which it stands, and the million and a half dollars expended in its erection. When completed the Philadelphia Library Company will most likely exercise control over the "Ridgway Branch." The building is in all respects one of the most massive and superb edifices of its kind in the world. It is an ornament of which any city might be proud, and is the noblest monument its founder could have desired to perpetuate his name and fame to after ages. It is solid enough to withstand the decaying hand of time, and will always form one of the noblest of Philadelphia's public institutions.

The other libraries of Philadelphia are as follows :

NAME.	LOCATION.
American Baptist Historical Society.....	530 Arch Street.
American Mechanics' Library.....	Fourth and George Streets.
Athenæum Library.....	Sixth and Adelphi Streets.
Apprentices' Library Association.....	500 Arch Street.
American Protestant Hall and Library Asso'n.....	1415 Locust Street.
Friends' Library.....	304 Arch Street.
Germantown Library.....	4838 Germantown Avenue.
James Page Library Company.....	208 East Girard Avenue.
Library Association of Friends.....	Race and Fifteenth Streets.
Library of the German Society.....	24 South Seventh Street.
Library of the Law Association.....	532 Walnut Street.
Mechanics' Institute Library.....	1110 South Fifth Street.
Moyamensing Library.....	Eleventh and Catharine Sts.
Odd-Fellows' Library.....	806 North Third Street.
Philadelphia City Institute Library.....	Eighteenth and Chestnut Sts.
Spring Garden Institute.....	1349 Spring Garden Street.
Southwark Library Company.....	765 South Second Street.
Wm. Brotherhead's Library.....	205 South Thirteenth Street.
West Philadelphia Institute Library.....	4050 Market Street.
Wagner Free Institute of Science.....	Seventeenth and Montgomery.

The public and private libraries of Philadelphia number 3700, and comprise a total of 2,985,770 volumes.

SCIENTIFIC INSTITUTIONS.

Chief among the learned societies of Philadelphia is the

Academy of Natural Sciences.

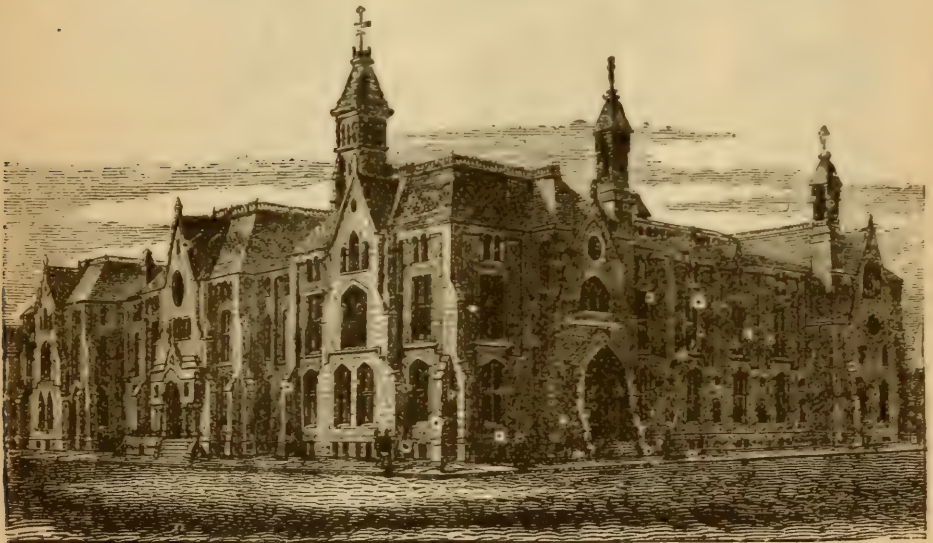
This society was organized in 1812, by a number of gentlemen for purposes of mutual improvement. At an early period a museum and a library were established. These have been steadily increased, and the library now contains nearly 25,000 volumes. The museum contains over 250,000 specimens. Among these are "more than 6000 minerals, 900 rocks, 65,000 fossils, 70,000 species of plants, 1000 species of zoophytes, 2000 species of crustaceans, 500 species of myriapods and arachnidians, 25,000 species of insects, 20,000 species of shell-bearing mollusks, 2000 species of fishes, 800 species of reptiles, 37,000 birds with nests of 200 and eggs of 1500 species, 1000 mammals, and 900 skeletons and pieces of osteology." The



BAPTIST BOARD OF PUBLICATION, CHESTNUT STREET.

collection is as valuable as it is extensive. Gratuitous instruction is furnished to a number of students. Visitors are admitted on Tuesday and Thursday afternoons, for the slight sum of ten cents. The money is devoted to the purposes of the building fund.

The Academy was formerly located on Broad street, south of Chestnut, but a year or two ago a new and larger edifice was begun at the southwest corner of Nineteenth and Race streets. It will have, when completed, a frontage of 288 feet on Nineteenth street, and a depth of 198 feet on Race street. It will be in the collegiate Gothic style, and will be constructed of



ACADEMY OF NATURAL SCIENCES.

serpentine stone with trimmings of Ohio sandstone. Only the north wing has been completed, and into this the collections of the Academy are crowded. It is estimated that the entire building with all its appointments will cost over \$700,000.

The American Philosophical Society

Occupies a quaint old building in Fifth street, immediately in the rear of Independence Hall. The society occupies the second floor of the building, the lower floor being devoted to the Court of Common Pleas and the Water Department. In 1727 Benjamin Franklin, then a prosperous printer of Philadelphia,

having become interested in scientific studies, established a society of kindred spirits, which he called "The Junto." Its membership was restricted to twelve, and its meetings were secret to prevent the intrusion of improper persons. Out of this grew the present society, which was founded in 1743. Among its members have been some of the greatest men of our history. The library of the society comprises nearly 20,000 volumes, and connected with it is a fine cabinet of coins and antiquarian relics. The present building was erected in 1789. Among the most precious possessions of the society is the original draft of the Declaration of Independence in the handwriting of Thomas Jefferson.

The Pennsylvania Historical Society

At present finds a habitation in a building attached to the Pennsylvania Hospital in Spruce street above Eighth. The society was established in 1825, and for a number of years struggled onward in the face of great difficulties. It has now a membership of 600, a library of 12,000 volumes, and 80,000 pamphlets, a gallery containing sixty-five portraits of historical personages, twelve historical pictures, and a large collection of engravings and manuscripts, among which are William Penn's papers. The society also possesses a valuable collection of American antiquities.

The Franklin Institute

Was incorporated in 1824, "for the promotion and encouragement of manufactures and the mechanic and useful arts by popular lectures, the formation of a library, with a cabinet of models and minerals, offering premiums on all subjects deemed worthy of encouragement, and by examining all inventions submitted to them." The membership is open to all persons friendly to and interested in the mechanic arts. The building occupied by the society is on the east side of Seventh street north of Chestnut. Its exterior is plain. The interior is provided with a fine lecture-room, in which lectures are delivered at stated times upon scientific subjects and accompanied with experiments.

The library of the Institute is on the second floor. There is also a museum, in which is the famous astronomical clock constructed by David Rittenhouse. The Institute has done and is doing a noble work for technical science, and its *Journal* is the oldest and one of the most valuable mechanical publications in this country.

The Zoological Society of Philadelphia,

After an existence of many years, has but recently become prominent among the learned associations of Philadelphia. It has within the past few years leased from the Fairmount Park Commissioners a garden of 35 acres, located on the west side of the Schuylkill below the Girard Avenue Bridge. This tract was originally known as "Solitude," and was the residence of John Penn, the son of Thomas and grandson of William Penn. The old mansion built by him when Governor of Pennsylvania is still standing. His descendants retained the place until its purchase by the Commissioners of Fairmount Park. The Zoological Society have fitted up their garden with a number of handsome improvements, consisting of a monkey-house, a beaver-dam, deer and buffalo parks, a winter-house for animals from the tropics, three large stone bear-pits, and an aviary. The collection of animals is already very large, and is being increased. It is the intention of the society to make this garden second to none in the world. Visitors are admitted at a charge of twenty-five cents for adults, and ten cents for children.

Besides the above associations are the *American Entomological Society*, at 518 South Thirteenth street; the *Germantown Scientific Association*, at 4836 Germantown avenue; the *Numismatic and Antiquarian Society of Philadelphia*, at the corner of Eighteenth and Chestnut streets; and the *Wagner Free Institute*, at Seventeenth street and Montgomery avenue.

Benevolent Institutions.

The benevolent and charitable institutions of Philadelphia number more than one hundred. In respect to her institutions of this kind, Philadelphia is second to no city in the Union. We can mention here but a few of the more prominent.

The Pennsylvania Institution for the Deaf and Dumb has been noticed in our account of Broad street. The

Pennsylvania Hospital

Occupies the square bounded by Eighth, Ninth, Spruce, and Pine streets. It was established in 1751, and among its first managers was Benjamin Franklin. The charter set apart the institution for "the relief of the sick, and the reception and cure of lunatics." The grounds are enclosed with a high brick wall, except in the centre of the Pine street front. Through this open space the group of venerable buildings can be seen from the street. The eastern wing was erected in 1755, the western in 1796, and the central building in 1805. This noble institution has admitted and cared for nearly 100,000 patients since its establishment, fully one-half of whom have been supported at its expense. Until 1841 a portion of the hospital was devoted to the treatment of the insane, but in that year these patients were removed to the new hospital in West Philadelphia.

The *Wills' Hospital*, in Race street, opposite Logan Square, was founded by a bequest of the late James Wills, for the treatment of diseases of the eye and limbs. It was opened in 1834.

The Pennsylvania Institution for the Instruction of the Blind

Is at the corner of Race and Twentieth streets. It was founded in 1833. It is a plain, but large and excellently arranged building, with an average attendance of about two hundred pupils, many of whom are from other States, who are required to pay for their instruction and support.

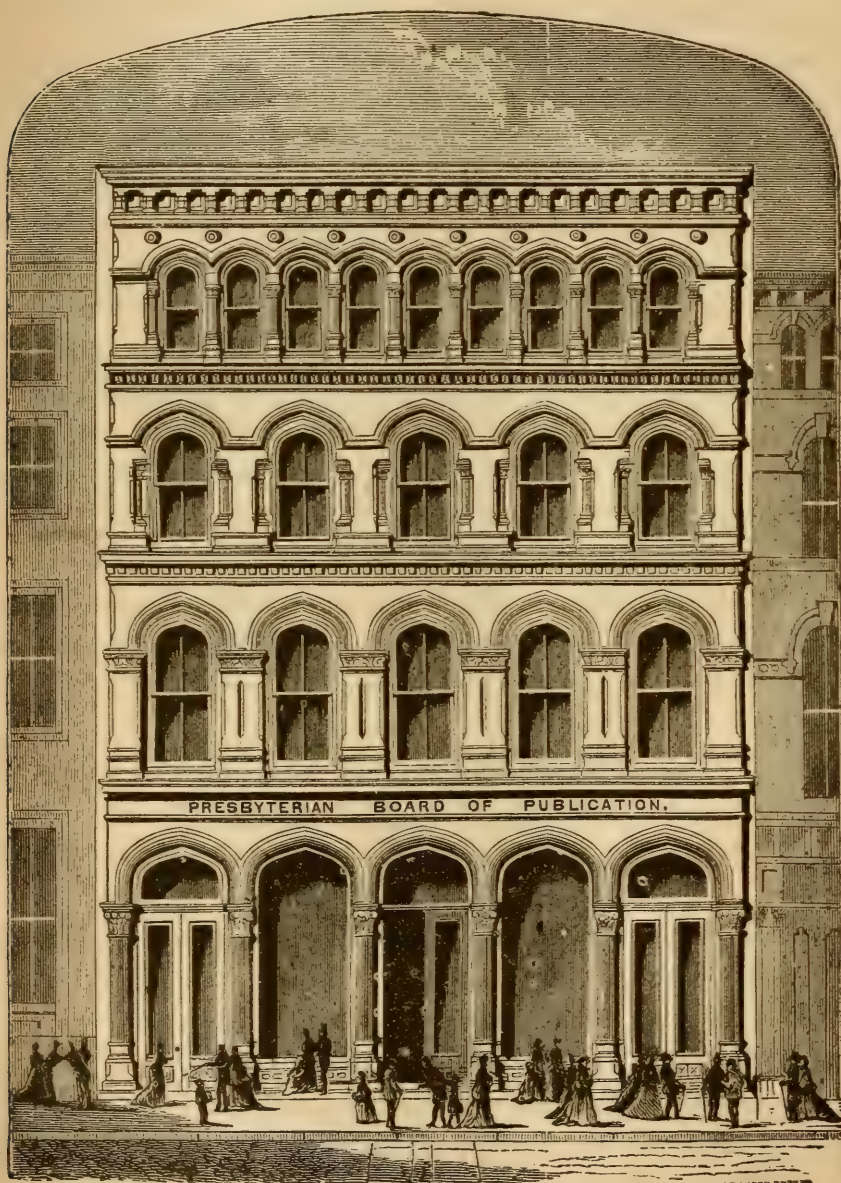
The Municipal Hospital

For the treatment of patients afflicted with small-pox and other contagious diseases is situated on Hart lane near Twenty-first street. It consists of a principal building and wings, all of Cleveland brown-stone, with a mansard roof. Adjoining it is the "Potter's Field," with its rows of nameless graves.

The *Hospital of the University of Pennsylvania* has been already mentioned in connection with the University. The

Blockley Almshouse

Lies south of the University and faces the Schuylkill. It consists of four buildings, each 500 feet long and three stories high.



PRESBYTERIAN BOARD OF PUBLICATION, CHESTNUT ST.

These are arranged as the four sides of a square. The number of inmates is about 3000, of whom 600 are in the insane department, and 200 more in the children's asylum. The buildings

themselves cover an area of ten acres, and stand in a tract of 179 acres which is cultivated for the use of the asylum. The city of Philadelphia annually expends over four hundred thousand dollars in the support of this institution.

On Market street, between Forty-second and Fiftieth streets, in West Philadelphia, is the

Pennsylvania Hospital for the Insane,

Which was established in 1841. The buildings stand in a tract of 113 acres of beautifully ornamented grounds enclosed with a high wall of stone, and consists of two large structures, each with a central edifice and wings, with Doric porticos, and a fine dome over one hundred feet high. One of these buildings is occupied by the male and the other by the female patients, and each has its separate enclosure and pleasure-grounds. They were erected at a cost of \$800,000. The number of inmates is about 400.

The *Presbyterian Hospital*, at Thirty-ninth and Filbert streets; the *Hospital of Christ Church*, on Belmont avenue, near the Park entrance; the *Jewish Hospital*, on the Olney road in the Twenty-third ward; the *Asylum of the Orphan Society of Philadelphia*, at Haddington; the *Burd Orphan Asylum*, on the Delaware county line, at the extreme western end of Market street; the *Preston Retreat*, the *House of Industry*, and the *House of Refuge*, are noble institutions. The

United States Naval Asylum

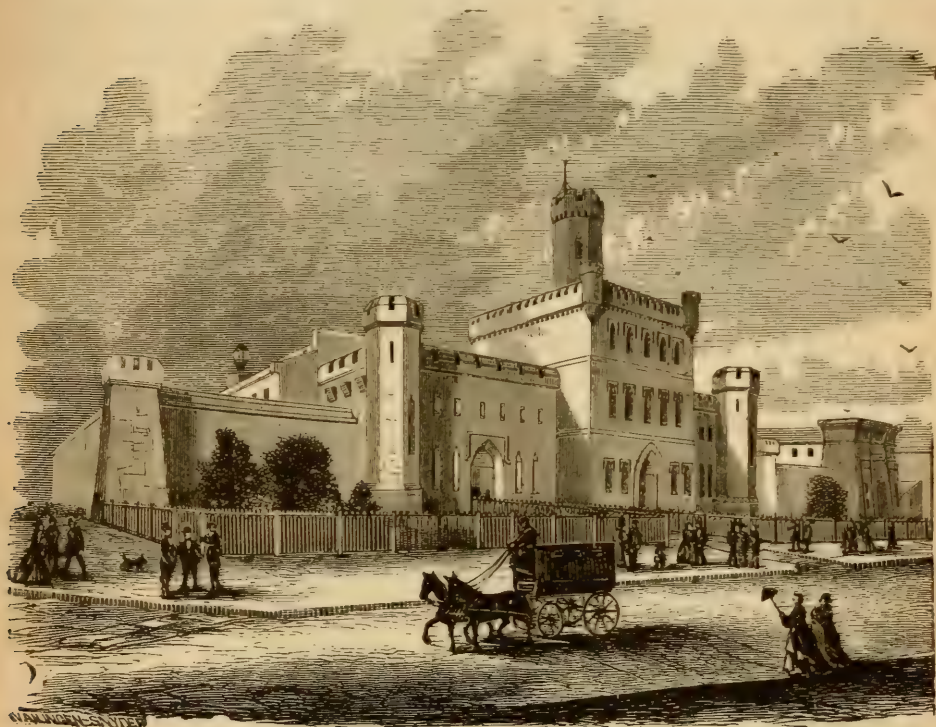
Is located on Gray's Ferry road below South street. It was built by the general government in 1832, and is for the care of infirm and decrepit officers and seamen of the navy and the marine corps. The main building has a frontage of 380 feet and a depth of 150 feet. It has a front of white marble, is three stories in height, and is approached by a flight of marble steps. There are about 130 decrepit sailors maintained here by the government. The Commodore's quarters stand north of the asylum. In the rear of the asylum is a large building erected during the late war by the government for the care of the sick and wounded sailors of the navy. The grounds are handsomely laid out.

PRISONS.

The prisons of Philadelphia are well conducted. They are three in number. The

Philadelphia County Prison

Is located on Passyunk road, just below Reed street. It is a massive edifice comprised of a central building with receding wings on either side. At the end of each wing is a heavy octagonal



PHILADELPHIA COUNTY PRISON.

tower, and on each side of each wing is a high wall terminating in a bastion. The architecture is in the English-Gothic style of the fifteenth century. The building is constructed of Quincy granite, and is regarded as one of the strongest prisons in the Union. About 14,000 persons are annually committed to it. The prison is generally known as the "Moyamensing Prison," from the former name of the district in which it stands.

The Eastern Penitentiary.

Or, as it is better known, "Cherry Hill Prison," occupies the entire square bounded on the south by Fairmount avenue, and lying between Twenty-second and Twenty-third streets. It is enclosed with a massive stone wall. The Fairmount avenue front consists of two square towers with battlements, 65 feet high, connected by a stone wall, in which is set the main entrance, a heavy door studded with bolts. An octagonal tower rises from the wall, above this entrance, to a height of 97 feet. At each corner is a heavy tower, connected with the central building by thick walls pierced with narrow and heavily barred windows. The grounds of the prison cover about eleven acres, nearly all of which space is occupied by the buildings. Within the enclosure is a central building, from which radiate seven corridors like the points of a star. They are so arranged that the warden, sitting in the central building, can see the whole length of each corridor. The cells of the convicts are located in these corridors, and to each cell is attached a small walled yard, in which, at certain hours of the day, the prisoner is permitted to enjoy the air and sunlight. The prison is for the confinement of convicts from the eastern counties of the State, and is conducted upon the solitary plan. The prisoners are furnished with work enough to keep them busy, and this they perform in their own cells. They are also permitted to earn money for themselves by extra work. Each prisoner is allowed to see and converse with the prison officials, the chaplain, and an occasional visitor, but is not permitted to hold any intercourse with any of his fellow-prisoners. It is claimed that this system possesses the peculiar advantage of preserving the prisoner from association with the other criminals during his confinement, and thus saves him from the danger of meeting with other prisoners after his release, and being by their influence drawn back into his evil ways. There are about 500 convicts confined here.

The House of Correction

Is at Holmesburg, in the northern part of the city. It contains two thousand cells, and answers the purpose of a work-house and a prison.

Places of Amusement.

The most prominent places of amusement have already been noticed in our account of the city. Philadelphia has one first-class opera-house—the *Academy of Music*, at Broad and Locust streets—and three first-class theatres. These are the *Chestnut Street Theatre*, on Chestnut street, between Twelfth and Thirteenth; the *Arch Street Theatre*, on Arch street between Sixth and Seventh streets; and the *Walnut Street Theatre*, at the corner of Walnut and Ninth streets.

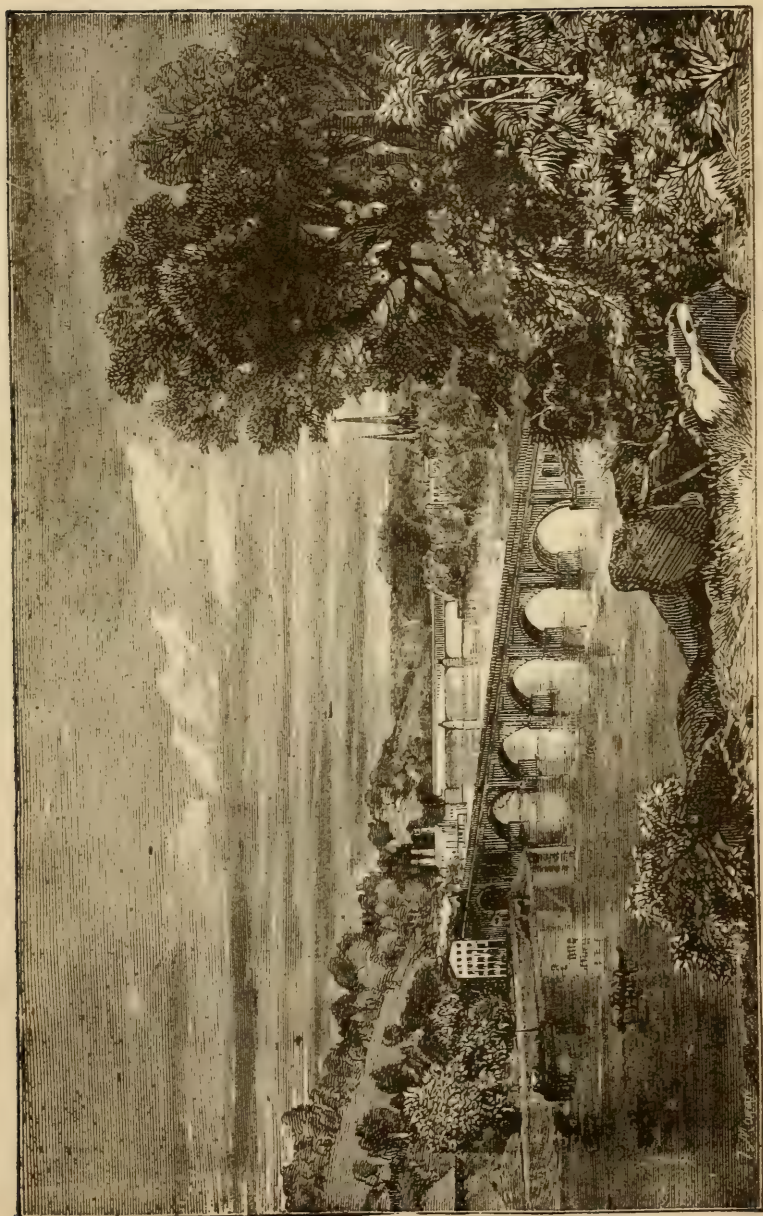
During the centennial season there will be two first-class concert gardens, viz.: *Theodore Thomas' Garden*, at Broad and Master streets, and *Kiralfy's Alhambra Palace Garden*, on Broad street below Locust.

The Colosseum, at Broad and Locust streets, affords a first-class art entertainment in its panorama of Paris.

The other places of amusement are, *Fox's New American Theatre*, on Chestnut above Tenth street; the *Grand Central Theatre*, on Walnut street above Eighth; the *New National Theatre*, at Callowhill and Tenth streets; and *Enoch's Varieties*, on Seventh street below Arch—all devoted to variety entertainments; the *Arch Street Opera House*, on Arch street above Tenth, and the *Eleventh Street Opera House*, both of which are negro minstrel halls, and well patronized; and *Colonel Wood's Museum*, at Arch and Ninth streets.

Cemeteries.

The principal cemetery of Philadelphia is *Laurel Hill*, on the east side of the Schuylkill, below the Falls. It is situated in a region famed for its beauty, and is one of the most beautiful cemeteries in the world. It contains a large number of splendid tombs, some of which are noted as works of art. The other



VIEW OF THE SCHUYLKILL FROM LAUREL HILL, SHOWING THE FALLS BRIDGE.

cemeteries are, *Glenwood, Monument, Woodlands, Ronaldson's, Odd Fellows, and Mount Moriah.*

Newspapers.

There are twenty-seven daily and weekly newspapers, devoted to politics and general news, published in Philadelphia. Of these, seven are Republican, four Democratic, and sixteen independent. About fifty periodicals are published in the city, which also conducts a large part of the book publishing business of the United States.

Banks.

There are forty banks in Philadelphia, with an aggregate capital of \$20,235,000. Of these, twenty-nine are National banks, and eleven continue to do business under the State laws. The National banks have a capital of \$16,235,000, and the State banks a capital of \$4,000,000.

Gas and Water.

Philadelphia is lighted with gas of an excellent quality, which is supplied at a reasonable rate to the citizens. The gas works are conducted by the city, and the consumers are secured the best gas that can be made, and are protected from the extortions of private companies. The total length of street mains is over 600 miles.

The city is supplied with water from the Schuylkill river. The water works are at Fairmount, on the east side of the Schuylkill. They were begun in 1812, and water was introduced into the city in 1827. Since then additional reservoirs have been constructed within the limits of the Park, and additional pumping houses have been erected at Belmont, Roxborough, and other points on the Schuylkill. The works are supplied with the most approved and complete machinery, the engines at the Spring Garden pump house having a capacity of ten millions of gallons every twenty-four hours.

In order to preserve the water of the Schuylkill pure and fit for drinking, the Commissioners of Fairmount Park, a few years

ago, purchased the land on both sides of the river to the Falls, and along the Wissahickon for several miles from its mouth. These



VIEW OF FAIRMOUNT WATER WORKS.

streams are thus prevented from being made the receptacles for the refuse of factories, which would render their waters impure.

About 546 miles of water pipes have been laid through the

city, and all the modern, and the most of the older houses, have water introduced into them. The average amount used per day is over 30,000,000 gallons. A vast storage reservoir has been recently constructed in the East Park, at a cost of \$2,000,000. It has a capacity of 750,000,000 gallons.

Street Railways.

There are about twenty-two main lines of street railway in Philadelphia. Including the branches of these, the number of railway lines is about forty-five. These constitute the best system of street transportation in the Union, and convey passengers to all points of the city at a uniform fare of seven cents. A number of these lines run direct to the entrances to the exhibition grounds.

The Water Front.

The plateau on which Philadelphia stands is washed on three sides by the Delaware and Schuylkill rivers, which give to the city all the advantages of a great commercial seaport. Along the Delaware shore there is always to be seen a forest of masts, representing the shipping of every nation on the globe. The visitor to Philadelphia should by no means omit an opportunity to view the city from the Delaware river, as from no other point can he as perfectly acquire a correct idea of the vast commerce which yearly enters and leaves this port. An excellent plan would be to engage a boat at Tacony, descend the river to the mouth of the Schuylkill, and ascend that stream to the exhibition grounds.

Starting from Tacony, the suburb of Bridesburg is soon passed, and then, turning a bend of the river, the visitor finds himself opposite Port Richmond, the coal-shipping depot of the Reading Railroad Company. This vast depot is one of the "sights" of Philadelphia, and is the most extensive in the world. It comprises 21 shipping docks, with an aggregate length of 15,000 feet, and accommodations for 250 vessels and boats. The shipping piers are 23 in number, and their aggregate length is $4\frac{1}{4}$ miles. They are provided with $10\frac{1}{2}$ miles of single track, and in addition to this are connected with each

other and with the main line of the road by 22 miles of track. The cars, loaded with coal at the mines, are brought direct to this depot, and are run out on the shipping piers. By means of trap-doors in the floors of the cars the coal is emptied into schutes 169 feet in length, which convey it directly into the holds of the vessels to be loaded. About 2000 men are employed here, and the daily shipments of coal amount to 30,000 tons. The piers have a storage capacity of 175,000 tons. The company at present employ six fine iron steamers for the transportation of coal from Port Richmond to other points, and intend to increase this number to fifty. Several hundred other vessels are employed in this trade.

Opposite Port Richmond is *Treaty Island*, a spot dear to the hearts of Philadelphia sportsmen.

A short distance below Port Richmond are the shipyards of William Cramp & Son, said to be the most extensive establishment of its kind in the United States. A number of vessels were built here for the navy during the civil war, among others the *New Ironsides*. The four iron steamers of the *American Line*, plying between Philadelphia and Liverpool, were also built here.

Below these shipyards rises the standpipe of the *Delaware Water Works*, and beyond this is a region devoted to rolling mills, iron foundries and forges; and beyond these still, occupying the river front from Laurel to Noble street, is a succession of lumber yards, where an immense business in all kinds of lumber is annually transacted. Large quantities are shipped to South America and the West Indies. Immediately below Noble street are the freight depots and piers of the North Pennsylvania and Reading Railroads.

Below Noble street the long line of foreign and coastwise shipping begins, and stretches away for several miles down the river. Immediately opposite this part of Philadelphia, and separated from it by the Delaware, is CAMDEN, the sixth city of New Jersey. It is but a suburb of Philadelphia, with which it is connected by six lines of steam ferries. The time occupied in crossing the river is five minutes.

STEAMSHIP DOCKS OF THE PENNSYLVANIA RAILROAD ON THE DELAWARE RIVER.



In the middle of the Delaware, opposite Market street, is Smith's Island, a noted pleasure resort. Immediately south of it, and separated from it by a narrow channel, through which the Camden & Amboy Railroad ferry boats pass, is Windmill Island, also a pleasure resort.

At the foot of Christian street and Washington avenue are the docks of the American line of steamers to Liverpool. In the rear of these docks is the enormous *Elevator of the Pennsylvania Railroad*, with a capacity of half a million bushels of grain, and every facility for prompt and economical shipment.

Immediately adjoining these docks is the *Old Navy Yard*, covering a tract of eighteen acres. It was purchased by the government in 1801 for \$37,500, and was sold about a year ago to the Pennsylvania Railroad Company for about \$2,000,000. Some of the finest vessels in the navy were built here. The navy yard has, since the sale, been entirely transferred to League Island. The Pennsylvania company intend to fit up the old navy yard as their principal terminus on the Delaware. This road is a large stockholder in the American line of steamers, which vessels lie at its docks and receive and transfer passengers and freight from and to its cars. By this system all breaking bulk of freight from distant points is avoided, there being but one reshipment, from the cars to the steamer, necessary.

At *Greenwich Point*, at the foot of Packer street, are the coal wharves of the *Pennsylvania Railroad*, second only in extent and the amount of business transacted at them to those of the Reading road at Port Richmond.

Just above the mouth of the Schuylkill is

League Island,

Now occupied by the United States as a Navy Yard. The island was presented to the government by the city of Philadelphia. It covers an area of 600 acres, and when the extensions in contemplation are completed, will have a frontage of nearly three miles on the Delaware, with an average depth of water of twenty-five feet. Machine shops, and all the establish-

ments necessary to the purposes of a great naval station, have been constructed or are in course of construction. The back channel is for the use of monitors, a large number of which are here laid up in ordinary. The advantages of League Island as a naval station are thus summed up by the Secretary of the Navy, in his report for 1871: "A navy yard so ample in its proportions, in the midst of our great coal and iron region, easy of access to our own ships, but readily made inaccessible to a hostile fleet, with fresh water for the preservation of the iron vessels so rapidly growing into favor, surrounded by the skilled labor of one of our chief manufacturing centres, will be invaluable to our country."

Just below League Island is *Mud Island*, on which stands old *Fort Mifflin*. This work was begun at the outbreak of the Revolution, and consisted then of an embankment of earth. It was known as the "Mud Fort." Upon the occupation of the city by the British in 1777 it became necessary to capture the defences on the Delaware, at Mud Island and at Red Bank, on the New Jersey shore, in order to open communication between the British fleet and the city. Could these works have been held by the Americans the enemy must have evacuated the city. On the 22d of October, 1777, Lord Howe opened a tremendous cannonade upon Fort Mifflin from his fleet, and at the same time a picked force of twelve hundred Hessians was sent to storm the works at Red Bank. The latter attack was repulsed with a loss of four hundred men, and the Hessian commander, Count Donop, was slain. In the attack upon Fort Mifflin the British lost two ships, and the remainder were more or less injured by the fire of the American guns. Soon after this repulse the British erected batteries on a small island in the Delaware, and on the 10th of November opened a heavy fire upon Fort Mifflin from these works and their fleet. The bombardment was continued until the night of the 15th. Fort Mifflin was literally destroyed, and on the night of the 16th was evacuated by its garrison. On the 18th the works at Red Bank, on the Jersey shore, were abandoned. The British removed now the obstructions from the river, and their fleet ascended to Phila-

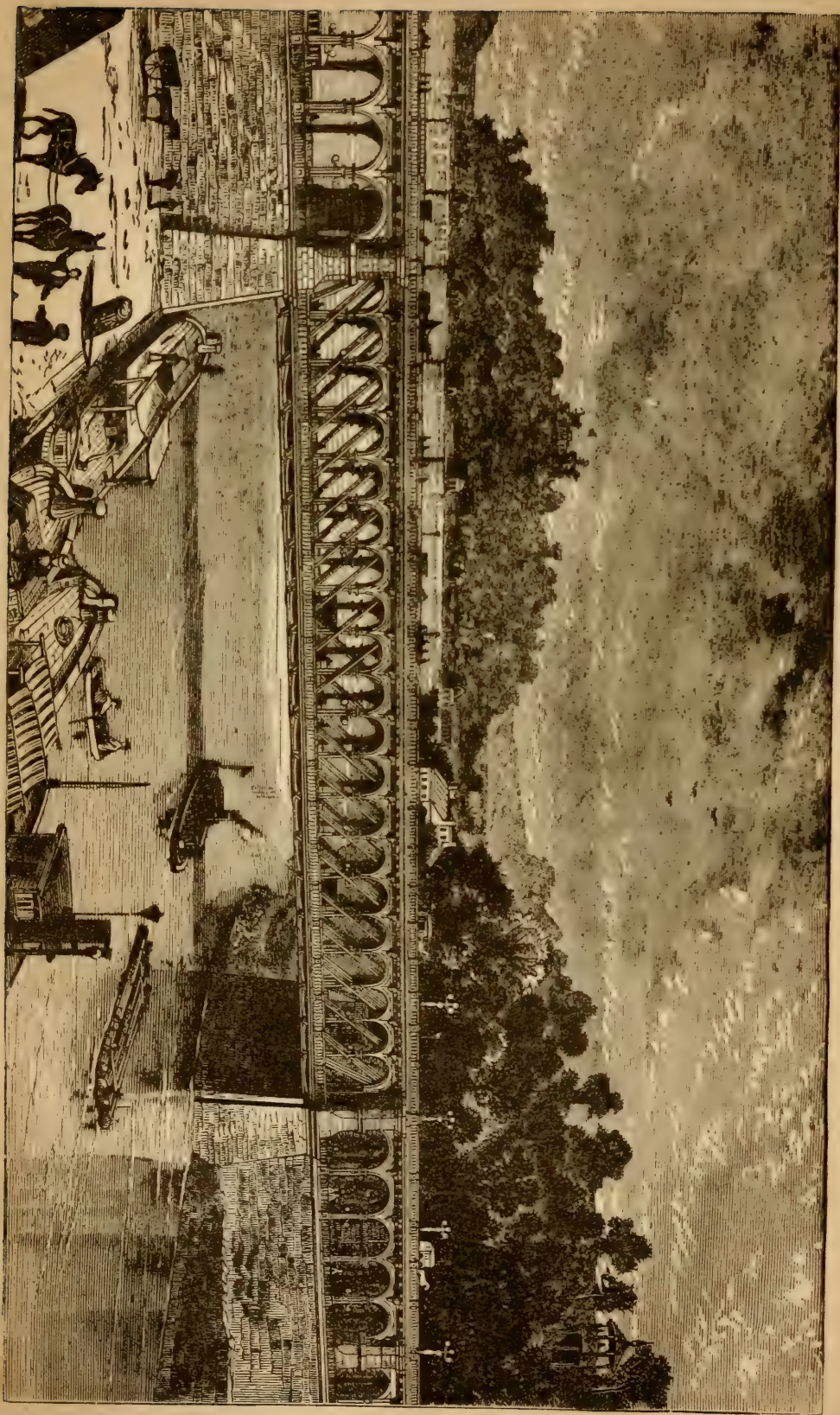
delphia. The present work was constructed after the close of the Revolution, and is strongly armed.

The *Schuylkill river* flows into the Delaware immediately below League Island. This river was so named by the early Dutch navigators, and the name is said to mean "a hidden river," from the fact that its mouth cannot be seen by voyagers ascending the Delaware until the junction is reached.

A little above the mouth of the river, on the eastern shore, are the new docks and the grain elevator of the *International, or Red Star, Steamship Line*, plying between Philadelphia and Antwerp. These docks are a terminus of the Pennsylvania Railroad, and transfers of grain and freight are made directly between the cars and the steamers. This promises to be one of the most prominent shipping points of the city.

"The Schuylkill may be reckoned among Philadelphia's 'reserve forces.' With a depth of water sufficient to float a frigate, and room enough on either bank for long rows of wharves and warehouses, it is comparatively deserted. Some coal and stone yards on its shores employ a few vessels annually. The Schuylkill Canal brings down numbers of boats from the mines in the coal regions; but, apart from these, there is as yet no commerce on the Schuylkill. This grand avenue to the future heart of the city is still waiting for the time when its services shall be required—a time which cannot be far distant."

The principal objects of interest on the Schuylkill are the bridges, which connect the quarters of the city lying on the opposite sides of the river. Some of these are among the finest in the world. The first of these, after passing the mouth of the river, is the *Penrose Ferry Bridge*; above this is the *Gray's Ferry Bridge*, a double structure, used for the passage of the trains of the Philadelphia, Wilmington and Baltimore Railroad, and for pedestrians and vehicles. Above this is the handsome iron truss bridge of the south extension of the Pennsylvania Railroad. Higher up is the new *South Street Bridge*, begun in 1870 and completed in the early part of 1876 at a cost of \$865,000. With its approaches, which rest upon massive stone arches, the bridge has a total length of two thousand four hun-



FAIRMOUNT BRIDGE.

dred and nineteen feet, and a width of fifty-five feet, except at the draw span, where the width is but thirty-six feet. This gives a roadway of thirty-five feet, and two footwalks, each ten feet wide. The river span is five hundred and eighty-four feet long, and consists of two permanent spans of one hundred and eighty-five feet each, and a pivot draw with two openings, each of seventy-seven feet, supported by a cylindrical cast-iron pier.

Chestnut Street Bridge lies next above. It was begun in 1861 and completed in 1866, at a cost of \$500,000. It is one thousand five hundred and twenty-eight feet in length, and is constructed of iron, with approaches and piers of granite.

At *Market street* is a temporary wooden bridge, erected in the place of the old wooden bridge that crossed the river at this point, and which was burned about the close of 1875. It is used for the Market Street Railway, by vehicles and pedestrians, and by the freight trains of the Pennsylvania Railroad.

The *Fairmount, or Callowhill Street, Bridge* stands on the site of the old suspension bridge, so well known to visitors to Fairmount. It is one of the handsomest and most substantial bridges in the Union, and during the progress of the Centennial Exhibition will be used by a large part of the visitors. There is a span over Callowhill street of eighty feet; then follow five arch colonnades on the east side, having a total length of one hundred and five feet; then the main span of three hundred and fifty feet over the Schuylkill; then ten arch colonnades on the west side, with a length of two hundred and thirty feet; then the bridge over Thirtieth street, ninety feet long; then seven spans of plate girders, three hundred feet in length, and finally the span over the Pennsylvania Railroad, one hundred and forty feet long; making a total length of one thousand two hundred and ninety-five feet. The bridge consists of two roadways, the upper one thirty-two feet above the lower. The upper floor is forty-eight feet wide between the balustrades, and the lower fifty feet wide. Each floor has a roadway with sidewalks on each side. The bridge is constructed of iron with stone piers and foundations, and is ornamented with a double row of magnificent gas lamps. Street railway tracks are laid on each floor,

and are used by a number of street car lines running direct to the exhibition grounds. The cost of this magnificent structure was \$1,200,000.

Above the bridge are the dam and water-works at Fairmount, and higher up still are the boat-houses of the Schuylkill navy, to which we shall refer again in another portion of this work.

Higher up still is the finest of all the Philadelphia bridges, the now famous

Girard Avenue Bridge,

Which spans the Schuylkill at the main avenue of approach to



VIEW ABOVE THE DAM, FAIRMOUNT.

Fairmount Park and the Centennial Exhibition. It is the most magnificent bridge in the United States, and will always be one of the principal objects of interest to visitors to the city. It has a length of one thousand feet, and a width of one hundred feet, and was built at a cost of \$1,404,445. The height of the roadway above low water is fifty-five feet. The girders rest on three piers and two abutments, and form three centre spans of one hundred and ninety-seven feet each. The following description of the bridge is taken from *The Scientific American*:

“The masonry of the piers and abutments is rock-faced ashlar

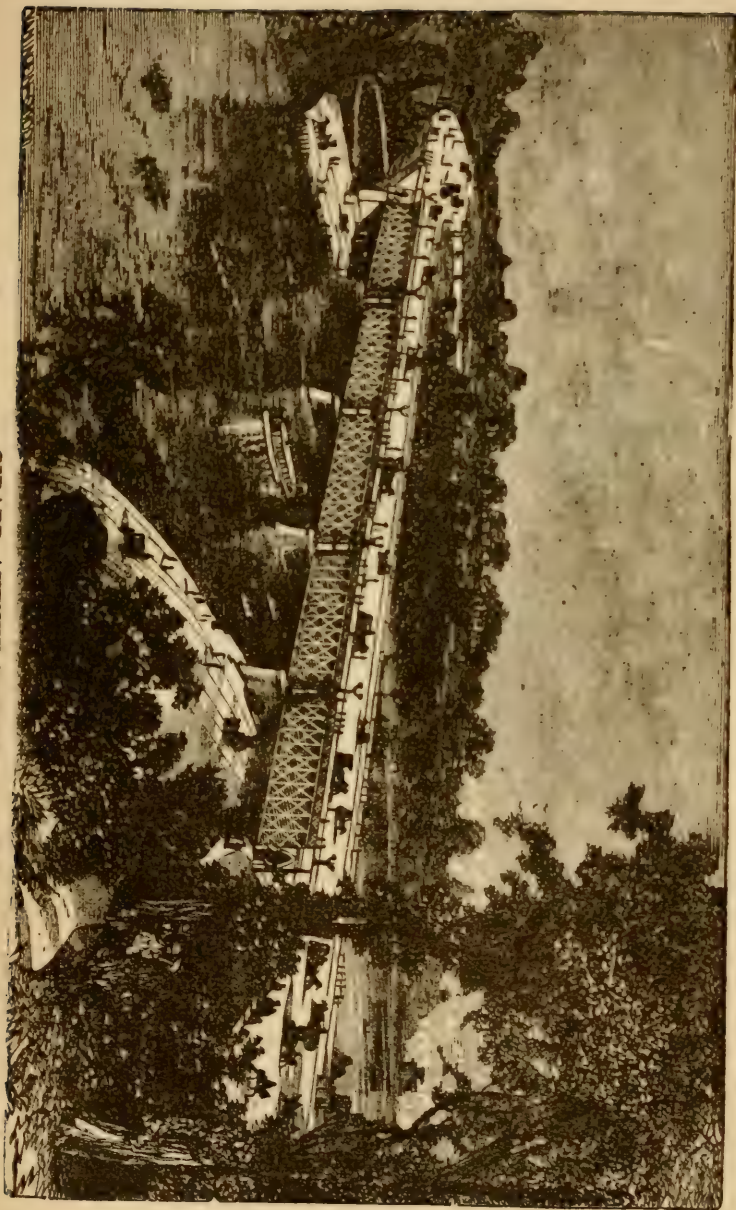
of Maine granite laid in mortar of one part Coplay cement to two parts of sand. The copings and parapets are of finely-cut granite, but no other cutting has been done, except the necessary drafts, the object being to preserve the massive effect of rock-faced granite work.

“Superstructure.”—There are seven lines of trusses or girders placed side by side, sixteen feet apart, and united by horizontal and vertical bracing.

“These trusses are of the well-known Phoenixville pattern of quadrangular girder. The upper compressive members and the vertical posts are Phoenix-flanged columns, united by cast-iron joint boxes. The lower chords and diagonals are Phoenix weldless eye-bars, die-forged by hydraulic pressure. Upon the tops of the posts, twelve feet apart, are laid heavy fifteen-inch Phoenix-rolled beams, and upon these longitudinally nine-inch beams placed two feet eight inches apart. These are covered transversely with rolled corrugated plates one-fourth inch thick, corrugated one and one-fourth inches high by five inches wide. These form an unbroken iron platform upon which the asphalt concrete is placed.

“The dead load of the structure, with a moving load of one hundred pounds per square foot, makes a total load of 30,000 pounds per lineal foot carried by seven trusses. The limit of strain is 10,000 pounds per square inch, reduced to 6000 pounds per square inch as the compressive limit on parts.

“All points of contact are either planed or turned. The pins are of cold rolled iron, and the limit of error between pin and hole is one sixty-fourth of an inch. The iron used in this bridge is double refined, or of ‘Phoenix best best’ brand, capable of bearing the regular tests of that quality of iron, as follows: Ultimate strength, 55,000 pounds to 60,000 pounds per square inch; no permanent set under 27,000 pounds to 30,000 pounds per square inch; average reduction of area at point of fracture, twenty-five per cent. The elongation of a twelve-inch bar is fifteen per cent., and the cold bend of a one and one-half inch round bar before cracking one hundred and eighty degrees, or hammered flat.



GIRARD AVENUE BRIDGE.

“Roadway.”—The corrugated iron plates which cover the bridge are themselves covered by four inches to five inches of asphalt, making a water-tight surface. The one hundred feet of width is divided into sixty-seven and one-half feet of carriage-way and two sixteen and one-half feet sidewalks. The roadway is paved with granite blocks in the usual manner, except that it is divided into seven ways by two lines of iron trackways next the sidewalks for horse-cars, and five lines of carriage-tramways, made of cut granite blocks, one foot wide, laid to a five-foot gauge. The gutters and curbstones are of fine cut granite. The sidewalks are covered for ten feet of their width with black Lehigh county slate tiles, two feet square, laid diagonally.

“On each side of the slate tiles are spaces two feet wide, which were originally laid with encaustic tiles. After one winter’s frost these tiles became so much shattered that they were removed and white marble tiles substituted in their place. The curbstone, eighteen inches wide, makes up the remainder of the sixteen and one-half feet.

“The sidewalks are separated from the roadway by railings of galvanized iron tubes with bronze ornaments, and are supported by cast-iron standards at every six feet. Every eighth standard is prolonged into a lamp-post. There are eight refuge bays, each of which contains a cluster of six lamps, the supporting shaft rising through an octagonal seat, which forms its base. The outer balustrade and cornice is of cast-iron with bronze open-work panels, and treated in a highly ornamental manner.

“The bronze panels represent various birds and foliage, such as the phoenix, swan, heron, owl, eagle, tobacco, ivy, Virginia creeper, ferns and hops. These panels are of statuary bronze cast under a pressure of sixty pounds per square inch, which forces the metal into all the finest lines and makes an extremely sharp casting; so sharp, indeed, that a casting made by this process from an electrotpe has been used to print engravings from. There are between eight and nine hundred of these bronzes set in the balustrade, like pictures in a frame.

“It is intended, at some future day, to place sidewalks inside the bridge, at the level of the lower chord. Access to these will

be gained through the arched openings in the abutments, and this spot has been selected as a proper place for a drinking fountain. The bridge is painted salmon color, relieved by blue and gold; the cornice and balustrade are green and gold.

“The construction of the permanent new bridge began May 11th, 1873, and July 4th, 1874, it was formally opened for public travel, and has remained in use ever since.



PENNSYLVANIA RAILROAD BRIDGE, FAIRMOUNT PARK.

“This rapidity of construction is due, first, to the mode adopted of laying the foundations under water, instead of pumping out that water; second, to the forethought displayed in making the temporary work strong enough to pass uninjured through a freshet which increased the depth of water from thirty feet to forty-six feet; third, to the peculiar construction of the girders (which contain over three thousand five hundred tons

of iron), which were made at Phoenixville from the ore, entirely by machinery, and without any hand labor; and, lastly, to the rapidity and facility of erection allowed by the pin-connected mode of construction."

Immediately above this magnificent structure is the *Connecting Bridge of the Pennsylvania Railroad*, over which the road from West Philadelphia to New York passes. Above this is the *Columbia Bridge*, a wooden structure, used by the Reading Railroad to connect its branches. Just below the Falls of the



THE BATTLE OF GERMANTOWN—CHEW'S HOUSE.

Schuylkill is a picturesque stone bridge of six arches, which is also the property of the Philadelphia and Reading Railroad Company, the trains of which pass over it.

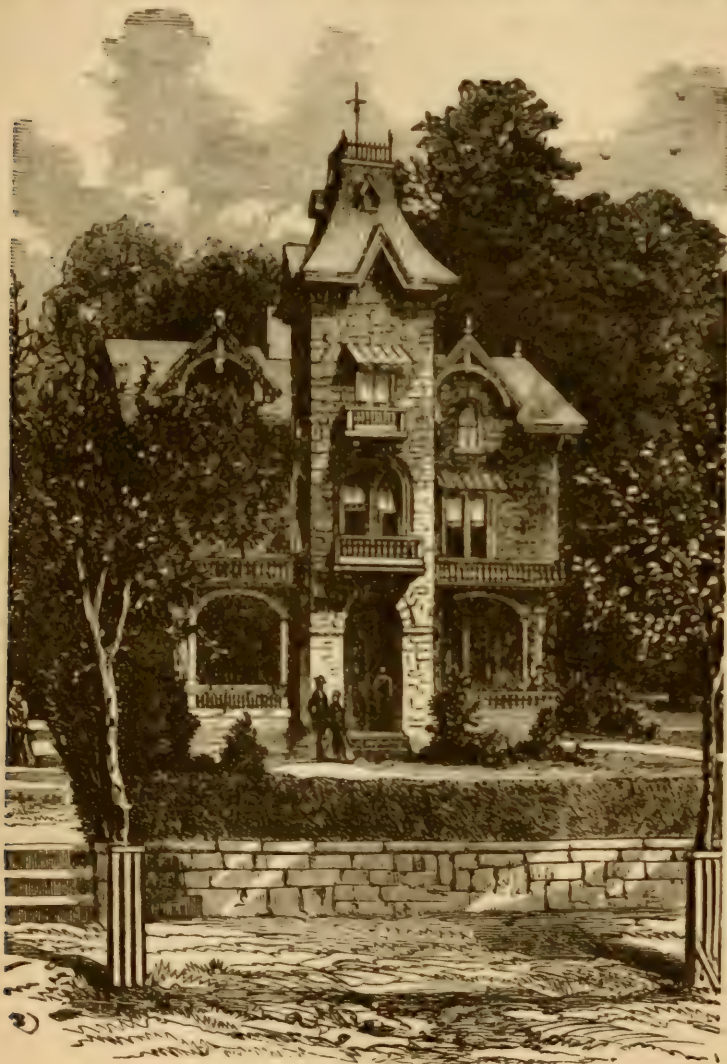
West Philadelphia.

West Philadelphia is one of the most attractive portions of the great city. It is built up with numerous handsome villas and cottages, which give to it a partly rural aspect, while it possesses every advantage and convenience of the city proper.

It offers many fine drives and many objects of interest to the visitor.

Germantown

Is the principal and most beautiful suburb of Philadelphia. It is reached by the Germantown branch of the Philadelphia and



A GERMANTOWN VILLA.

Reading Railroad, and by a line of horse-cars. It was settled in 1683 by emigrants from Germany, from whom it takes its name, and was a distinct corporation until 1854, when it was incorporated with Philadelphia, of which city it now forms a

part. It contains many splendid country-seats, a large number of elegant but less costly suburban mansions, and several historical mansions, chief among which is the old "Chew Mansion," which was occupied by the British as a fortress during the battle of Germantown, on the 4th of October, 1777. Germantown is a favorite place of residence with the wealthier class of Philadelphians, and its natural beauty has been heightened by a liberal expenditure of wealth and taste in the adornment of the homes with which it is filled.

Manufactures and Commerce.

The number of manufacturing establishments in Philadelphia is 8184. They employ a capital of \$174,016,674, and 137,496 hands; they pay out \$58,780,130 annually for wages; consume raw material to the amount of \$180,325,713; and yield an annual product of \$322,004,517. In 1872 the commercial returns were as follows: Vessels arrived, American, 503; tonnage, 185,727; crews, 4943; foreign, 522; tonnage, 322,184; crews, 6325. Aggregate arrived, vessels, 1025; tonnage, 417,911; crews, 11,268. Vessels cleared, American, 343; tonnage, 153,845; crews, 3741; foreign, 547; tonnage, 251,467; crews, 6526. Aggregate cleared, vessels, 890; tonnage, 405,312; crews, 10,267. Of the arrivals 27 were steam vessels, of which 21 were American and 6 foreign. Of the clearances 27 were steam vessels, of which 16 were American and 11 foreign.

In the same year the imports amounted to \$20,383,853; and the exports to \$21,016,750. Of the latter sum \$20,982,876 were for domestic exports, and \$33,874 for foreign exports.

Such is the great city in which the Centennial Exhibition is being held.

CHAPTER IV.

FAIRMOUNT PARK.

Dimensions of the Park—Its History—Improvements—Old Fairmount and Lemon Hill—View from the Hill—The Waterworks—The Art Gallery—The Lincoln Monument—Lemon Hill—Reminiscences of Robert Morris—Sedgeley Park—The River Road—The East Park—The Storage Reservoir—Old Country-seats—Mount Pleasant—Arnold's Home—Fort St. David's—The Wissahickon—Romantic Scenery—The Hotels—The Hermit's Well—The Mystics—Washington's Rock—The Monastery—The West Park—Solitude—The Zoological Gardens—The Grounds of the Centennial Exhibition—Lansdowne—George's Hill—Belmont—Judge Peters—The Sawyer Observatory—How to Reach the Park.

FAIRMOUNT PARK, the great pleasure-ground of Philadelphia, is the fourth park in size in the world. It contains 2740 acres, and is exceeded in size only by Epping and Windsor forests, in England, and the Prater, in Vienna. It lies on both banks of the Schuylkill, from Callowhill street bridge to the Falls of Schuylkill and the mouth of Wissahickon, a distance of six miles, and along the Wissahickon, from its mouth to Chestnut Hill, a further distance of seven and a half miles.

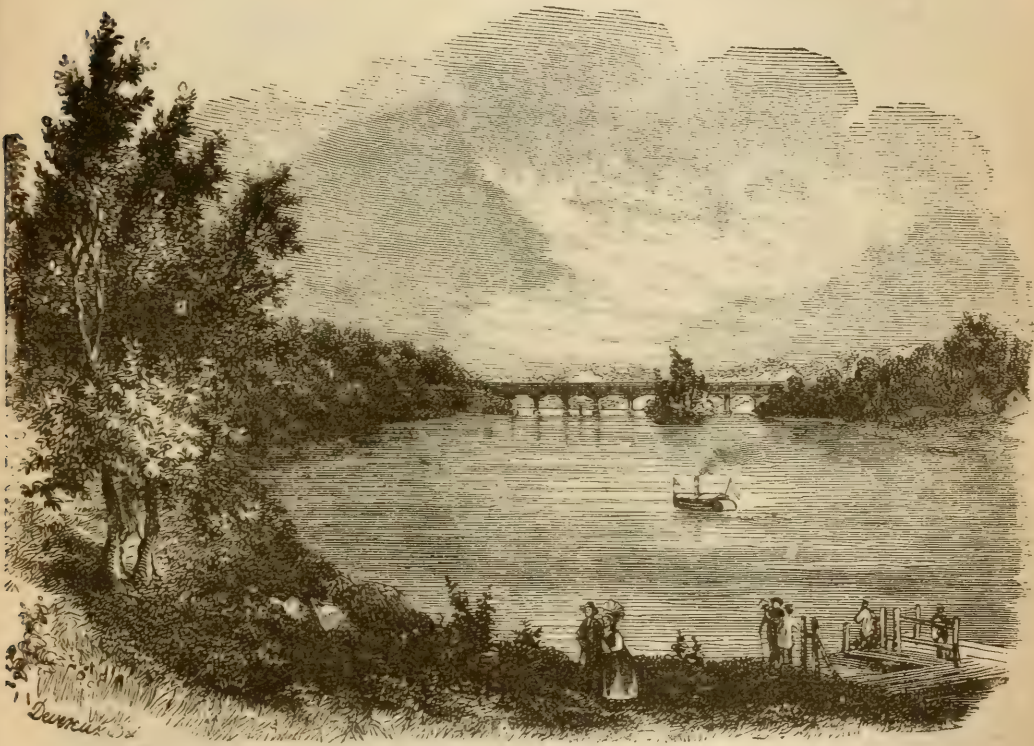
The Park grew out of the necessity of placing the Schuylkill and Wissahickon under the control of the city, in order to preserve the water supply of Philadelphia from pollution by the refuse of the factories and slaughter-houses that were being erected along the shores of those streams, and out of the conviction in the minds of the Philadelphians that their great and growing city needed a suitable pleasure-ground for the enjoyment of its people.

The Park is naturally one of the most beautiful enclosures in the world. It has not yet received the care and taste that have been lavished upon the "Central" of New York, but improve-

ments are being steadily and rapidly made in it, and it will, before many years, be the most magnificent park in existence. It is generally divided into four sections, known as Old Fairmount and Lemon Hill, East Park, West Park, and Wissahickon Park.

Old Fairmount and Lemon Hill.

Fairmount and Lemon Hill begin at Callowhill street bridge, and extend a short distance above the Connecting Bridge of the



THE SCHUYLKILL, AT PHILADELPHIA.

Pennsylvania Railroad. Old Fairmount has long been a pleasure resort, and was originally laid off as such upon the construction of the Fairmount Waterworks in 1822. William Penn selected this site as the most suitable for his manor, as he was greatly impressed with its beauty.

The main entrance to the Park is from Green street. On the right rises the picturesque height which gives its name to the Park, and on which are located the reservoirs into which the



waterworks on the river shore below pump daily by steam and water power the enormous quantity of thirty-five million gallons. The reservoirs are four in number, and from them the visitor may enjoy one of the most superb views to be obtained in the Park. "At the foot of the galleries of green velvet grass, above which you are standing, you have the Reservoir Park,

with its cascades, walks and plots; and turning westward your eye embraces the lake-like Fairmount dam, with its broad and bright-falling sheets of foam; its head-race, forebay, and beautiful terraces; the fairy-like little steamers that ply up and down the Schuylkill; the temple-like pier at the dam; the boat-houses of the Schuylkill Navy and their little fleets with waving streamers; the grand Lincoln monument, and beyond this, the arboreal and floral



FOUNTAIN NEAR MINERAL SPRING, LEMON HILL.

commencement of Fairmount Park proper, with its broad and beautiful river-drive on the left, of fourteen miles; its fountains ascending, and shrubbery-lined pathways, embowered seats and historic groves." Near the base of the standpipe on the cliff overlooking the forebay are "Leda and the Swan," a group of statuary which formerly ornamented the old waterworks at the intersection of Broad and Market streets.

Not far from the Green street entrance to the Park is the *Art Gallery*, a rough-cast building, containing a number of fine works of art, among which are Rothermel's "Battle of Gettysburg," painted by order of the State of Pennsylvania, at a cost of \$30,000, and Benjamin West's "Christ Rejected." The gallery is free to visitors. The "Battle of Gettysburg" holds a place in Memorial Hall during the Exhibition.

Passing the Art Gallery, and following the main drive, the



MONUMENT TO ABRAHAM LINCOLN IN FAIRMOUNT PARK, PHILADELPHIA.

visitor reaches the *Lincoln Monument*, which stands in the open space at the foot of Lemon Hill. It is of bronze, and represents the martyred President seated in his chair, holding in his right hand a pen, and in his left the scroll of the Emancipation Proclamation. The statue rests upon a high pedestal of granite. On the south side of the pedestal is the inscription: "To Abraham Lincoln, from a grateful people;" on the east, these

words: "Let us here highly resolve that the government of the people, by the people, and for the people, shall not perish from the face of the earth;" on the north: "I do order and declare, that all persons held as slaves, within the States in rebellion, are and henceforth shall be free;" on the west side: "With malice towards none, with charity towards all, with firmness in the right, as God gives us to see the right, let us finish the work we are in."

The statue is the work of Randolph Rogers, the artist of the famous Bronze Doors of the Capitol at Washington. It was modelled at Rome and cast at Munich. Its cost was \$33,000. It is colossal in size, being 9 feet 6 inches in height. It was dedicated in 1870.

Beyond the Lincoln Monument is a handsome fountain in the centre of a large basin, known as the *Gold-fish Pond*. From this spot the hill rises in terraces to the summit. Ascending to the top by the stone steps which lead up from the successive terraces, the visitor finds himself on the summit of

Lemon Hill,

And before a handsome, old-time mansion. The present edifice was erected in 1800, by Henry Pratt, on the site of an older mansion, which constituted the country-seat of Robert Morris, the great financier of the Revolution, the man to whose fertile brain, not less than to the valor of her sons, America owed the successful issue of the war for Independence. Morris' country-seat was generally known as "The Hills." His residence was simple but tasteful. He owned a fine town-house, but this was his "dearly loved" home, and here he resided from 1770 to 1798. A part of this time he was virtually a prisoner, as he was afraid to leave the house lest he should be arrested for debt.

The part played in the Revolution by this illustrious man should never be forgotten by his countrymen. But for his indefatigable efforts the American cause must have failed for want of funds to carry on the war. At the critical moments, however, Morris promptly devised the means of raising the necessary funds, and often when no other way would answer

pledged his own private credit as security for the loans made to the Continental Congress. Personally, he was a great sufferer from the financial troubles caused by the war, but had the happiness in the end, of seeing the triumph of the cause for which he had labored so devotedly. Shortly after the close of the Revolution he formed a new private business enterprise,



EAST TERRACE, LEMON HILL, FAIRMOUNT PARK.

which resulted in a failure and caused his ruin. He had always advocated imprisonment for debt, and now, being unable to meet his liabilities, was obliged to suffer that penalty. He was offered his liberty in consideration of the great services he had rendered to his country during the Revolution, but refused to accept it, saying that "a law-maker should not be a law-breaker."

He remained in prison for four years, and was released in 1802, upon the passage of the Bankrupt Law. Shortly after this, he died in an humble house on Twelfth street above Chestnut. His beautiful home at "The Hills" was sold at the time of his ruin, and in 1800 Henry Pratt erected the present mansion on the site of the old one. The house is now used as a restaurant.

Beyond the plateau on which the house stands is another, once called "Sedgeley Park." Here is a plain wooden building known as "Grant's Cottage," from the fact that it once stood at City Point, Virginia, and was used by General Grant as his head-quarters during the siege of Petersburg. It was removed to Fairmount Park after the close of the civil war.

From the Green street entrance to the park the river-road sweeps around the foot of Lemon Hill, and skirts the shore of the Schuylkill, passing the beautiful and substantial boat-houses of the Schuylkill Navy. It is the main drive to the East Park, and passes under the Girard avenue and Pennsylvania Railroad bridges, after which it plunges through a tunnel through Promontory Rock, and enters the East Park. It rises gradually from the river to the level of the Reading Railroad, which it crosses at Mifflin Lane.

The East Park.

The East Park extends from Thirty-third and Thompson streets to Ridge avenue, a short distance north of Dauphin street. From this point Ridge avenue forms the eastern boundary of the park, and the Schuylkill the western, to the mouth of the Wissahickon. Above South Laurel Hill Cemetery the East Park is scarcely a quarter of a mile in width. Its greatest breadth below that point is about one mile. Its extreme length is about four miles.

In the lower section of this portion of the park is located the vast storage reservoir, now in course of construction, the capacity of which is 750,000,000 gallons of water. It is built upon what was formerly a cultivated field, thus sparing the most picturesque portions of the East Park.

The section east of the Schuylkill is one of the most beauti-

ful portions of Fairmount Park. It comprises a series of ravines and hills of the most picturesque character, stretching northward towards the Falls, and jutting out upon the Schuylkill in bold and beautiful cliffs and promontories, which are the delight of the artist. At every turn the visitor is confronted with some new and charming landscape. The trees are mag-



GLEN FERN, WISSAHICKON.

nificent and the shrubbery luxuriant and carefully trained. The grass is soft and velvety, and the lawns are perfect.

Within the limits of the East Park are several of the old time country-seats, which were once so thick in this region. Some of them are rich in historical interest. The first of these is *Fountain Green*, near the lower end of the reservoir. It was

once the residence of Samuel Meeker, and was built in the latter part of the last century. North of this, between the reservoir and the Reading Railroad, is *Mount Pleasant*, a fine stone mansion, built some years before the Revolution by Captain John McPherson. During the wars between Great Britain, France and Spain, in the early part of the eighteenth



SCHUYLKILL BLUFF, FAIRMOUNT PARK.

century, Captain McPherson commanded several privateers belonging to the port of Philadelphia. He was a bold and successful cruiser, and accumulated a considerable fortune from his captures, with a part of which he built this mansion, which John Adams, who was a guest of McPherson in 1774, describes as "the most elegant seat in Pennsylvania." McPherson sold

the house soon after the opening of the Revolution, and it was purchased by Major-General Benedict Arnold, then in command at Philadelphia. After his marriage to Miss Shippen, of Philadelphia, Arnold settled the place on his wife and children, retaining only a life-interest in it. Upon the discovery of his treason, the State of Pennsylvania confiscated his life-interest in the estate. The mortgage given by Arnold at the purchase of the property was never paid, and it was sold again in 1796, the new purchaser being General Jonathan Williams, a gallant officer of the Revolution, and subsequently the first Superintendent of the Military Academy at West Point. From the fall of 1781 to the spring of 1782, the house was the head-quarters of Baron Steuben, of the American army.

Just south of Laurel Hill is Strawberry Mansion, now a park restaurant. It is a popular place of resort for the people of Philadelphia, and is admirably conducted. The view from the heights on which the mansion is located is magnificent.

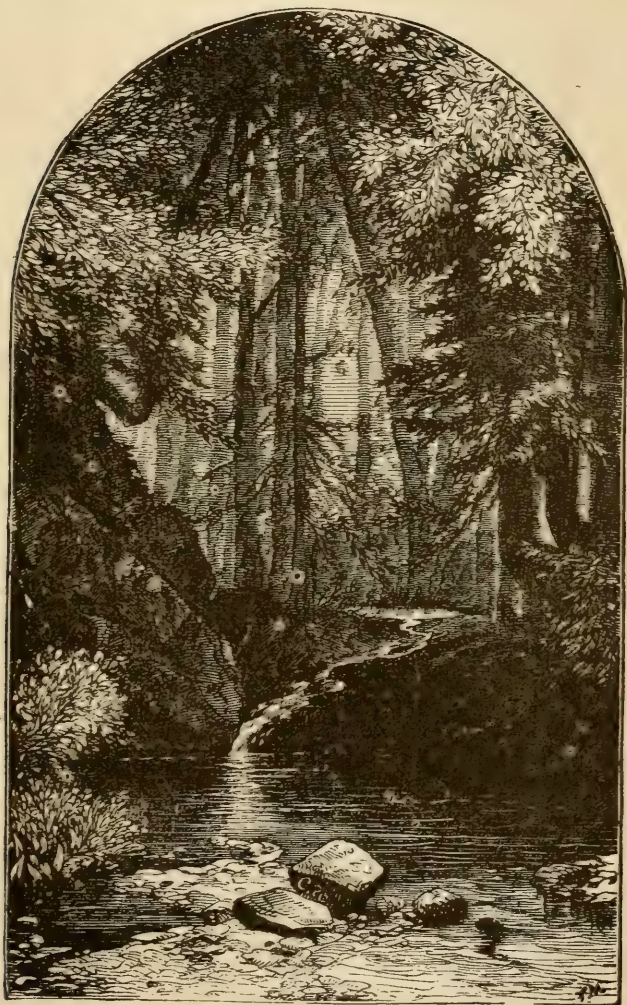
Within the limits of the East Park, just above the stone bridge of the Reading Railroad, is *Fort St. David's*, a fishing club-house, erected on the site of a strong work of heavy timber which was built long before the Revolution at the base of the hill from which the rock which forms the falls projects.

The Wissahickon Park

Commences a short distance above the Falls and extends from the mouth of Wissahickon Creek to Chestnut Hill, a distance of seven and a half miles. It consists of a narrow strip along both banks of the river, and is less than an eighth of a mile in width. It is one of the most beautiful sections of the park. Nature has adorned it with such a bold and lavish hand that there is nothing for art to do in its behalf.

The Wissahickon has long been famous for its scenery. The creek lies deep in a rocky ravine, the wooded sides of which rise up steeply on either shore and in some places almost overhang it. Its waters are calm and clear, and except when swollen by heavy rains or the spring freshets, have in many places scarcely any motion at all. "Along the whole course of this romantic

stream the scenery is wild and constantly changing in appearance. The waters leap along seeking the great river by devious courses, winding in curves, and sometimes changing suddenly their direction as new obstacles are encountered. Every step along the banks opens new vistas of beauty and of romantic



THE HERMIT'S WELL.

impression. The effect is heightened by the towering rocks and lofty trees which shade the pathway or let occasional gleams of brightness flash through the gorges."

A short distance above the Falls is *Wissahickon Hall*, a house well known to pleasure-seekers for its catfish suppers. Above this are the *Maple Spring*, *Valley Green*, and *Indian Rock*

hotels. Above Maple Spring is *Washington's Rock*, a favorite resort of the father of his country during his residence in Philadelphia as President of the United States.

On the opposite side of the Wissahickon, and beyond the limits of the park, is "The Hermit's Well," dug by Johann Kelpius, a religious enthusiast, who founded a peculiar sect here towards the close of the seventeenth century. "Johann Kelpius emigrated from Germany to Pennsylvania in 1694, and with him forty others; they settled on the Ridge, the range of hills on the west bank of the Wissahickon, and called themselves the Society of the Woman in the Wilderness. Kelpius was their leader and believed he would not die before he saw the millennium. But he was mistaken. He died in 1708. Three of his followers—the rest having disbanded—were afterwards known as the Hermits of the Ridge, and continued to live in their caves, awaiting the sign and visible presence, until death claimed them.

"A short distance above the bridge which crosses the Hermit's Lane, and also on the opposite bank of the stream, is a high bluff; the rock which rises from this bluff is called the Lover's Leap. It overlooks a wild gorge and stands two hundred feet above the surface of the stream. On the face of the rock is an illegible Latin inscription, said to have been cut by Kelpius. It is the scene of one of the numerous traditions which survive here."

The main road crosses the Wissahickon just above Washington's Rock, and continues its course to Chestnut Hill, on the west side of the creek. A short distance above the bridge the stream bends, and is here joined by Paper Mill Run, a small creek "which is scarcely less picturesque in places than the Wissahickon. It joins the latter by a series of waterfalls. The lower of these has a perpendicular descent of about twenty feet. Near it stands the old house in which David Rittenhouse was born, and near its source the first paper-mill in America was erected by his ancestors in 1690. Beyond these points the road reaches a bridge—the Red Bridge—over which it crosses to the opposite bank of the stream. About a mile



THE WISSAHICKON.

further, another road leaves the park road and, crossing the stream by a bridge, takes you to the Monastery. When and by whom it was erected antiquarians are not agreed. It appears to have been built about 1750. It stands on high ground on the brow of a hill, with a range of hills towering above it. A lane winds round the bend of the bluff and, climbing its steep side, forms in front a semi-circular lawn. The outlook here and the uplook from the romantic dell below are magnificent. In the valley below (Willow Glen) there is a spot known as the Baptistery. Here the monks immersed their converts. A yard in the rear of the dwelling was used by them for the burial of their dead.

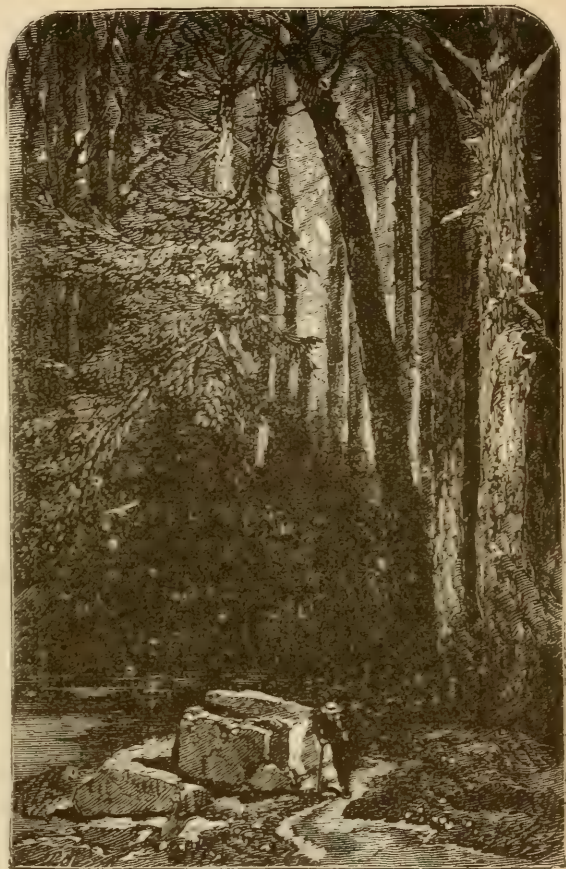
"A mile further, on the west bank, are the caves, which are situated in a lovely valley formed by the junction of a small stream with the Wissahickon. The most remarkable of them was excavated by miners seeking for treasures; the other caves are natural, and were perhaps holes for bears and foxes, and possibly the resort of Indians. A short distance beyond—three and a half miles above its mouth—the stream is crossed by a beautiful structure called the Pipe Bridge, nearly seven hundred feet long and one hundred feet above the creek. It is iron throughout, except the bases of the piers, which are set in masonry, and is a model of grace and strength. It conveys the water supply from the Roxborough to Mount Airy reservoir at Germantown. A hundred yards above this a wooden bridge spans the river. Crossing this bridge, turning to the left and following a pathway a short distance, you arrive at *The Devil's Pool*, where Lime-rock or Cresheim creek comes sighing down, forming a mirror-like basin reflecting every object near; upon moonlight nights nothing can equal the numerous fairy-like figures and grotesque outlines and shadows that play in the silent and fantastic light.

"It was the scene of an engagement during the battle of Germantown, and its waters once were dyed red with blood; a portion of the earthworks used in the engagement may still be seen in close proximity.

"A short distance further on is *Valley Green*, with its hotel

Here the hills open out into the sunlight, and a stone bridge with strong buttresses winds across the stream. The bridge has only one arch, and its reflection is so perfect that on fine days we see an entire oval of masonry instead of a single arch.

"Proceeding a short distance through a deeper and more mountainous course of the stream, we reach a point of celebrity, known as *Indian Rock*, the abode and hunting-grounds of the last tribe of the Indian race in this region. Upon a lofty and peculiarly shaped rock is seen the figure of their chief, Todyascuny, or Todawskim, who, with the remains



HEMLOCK GLEN ON THE WISSAHICKON.

of his people, left for the hunting-grounds of the West above an hundred years ago."*

Less than a mile above, the extreme northern limit of the park is reached, in the bright, open country about Chestnut Hill.

The West Park.

The West Park commences at Spring Garden street, on the west side of the Schuylkill, and extends along that river to the Falls. Below Girard avenue it is a narrow strip, a large part of which immediately below Girard avenue bridge has been

* *Magee's Illustrated Guide to Philadelphia*, pp. 103, 104.

assigned to the Zoological Society for their *Zoological Garden*. This is the portion formerly known as *Solitude*, the country-seat of John Penn, to which reference has been made in another part of this work.

Above Girard avenue the park widens rapidly, stretching



ENTRANCE TO FAIRMOUNT PARK AT EGGLESFIELD.

away from the entrance at the bridge to George's Hill, two miles distant. This is its widest portion.

The main road crosses Girard avenue bridge from old Fairmount and Lemon Hill, and passes under the Pennsylvania Railroad bridge by a series of arches at the point known as Egglesfield. About a quarter of a mile beyond this it passes

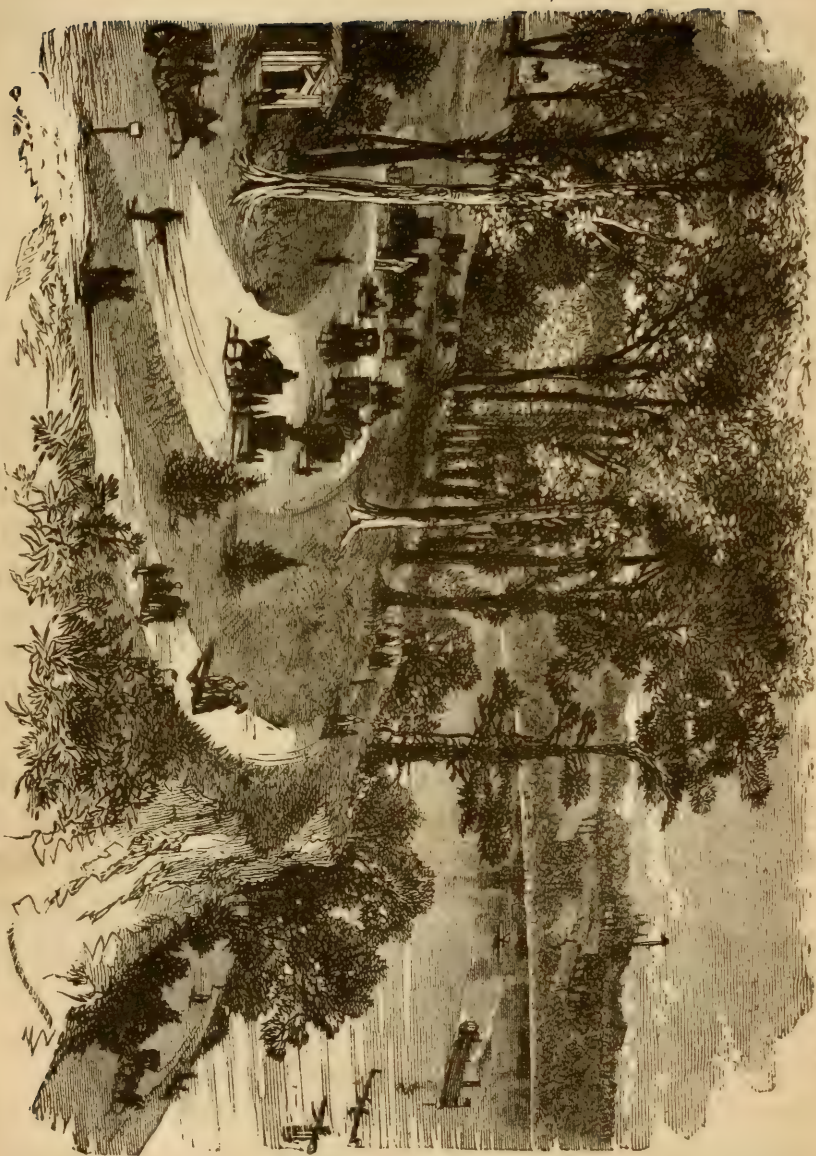
Sweetbriar Mansion, once the residence of Thomas Breck, at one time a member of Congress from Philadelphia.

Farther on, about a mile and a quarter from Girard avenue bridge, are Lansdowne Plateau and Lansdowne Concourse, the grounds now occupied by the *Centennial Exhibition*. The Lansdowne Mansion was destroyed by fire in 1854. It stood near the group of giant pine trees. The estate formerly comprised a tract of two hundred acres, and extended from Sweet Briar to Belmont and George's Hill. The mansion was built by John Penn, the grandson of William Penn, who resided in it during the period of the Revolution. His sympathies were with Great Britain in this struggle, and his great estate was confiscated by the State of Pennsylvania in consequence. He retained the Lansdowne property, and at his death in 1795 bequeathed it to his widow, Anne Penn, the daughter of Chief-Justice Allen. In 1797 it was purchased by William Bingham, the first United States Senator from Pennsylvania. He lived in great style, and the place was well known for its splendid hospitality, and was the resort of the most distinguished people of the day. His daughter married Alexander Baring, afterwards Lord Ashburton. It thus became the property of the Baring family, from whom it was purchased by the Park Commission.

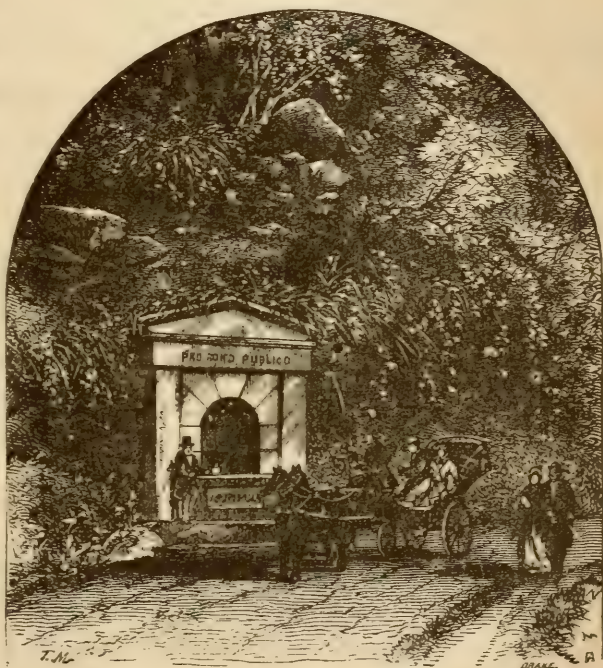
Beyond Lansdowne is *George's Hill*, a beautiful elevated tract of eighty-three acres presented to the city by Jesse George and his sister, well-known and respected members of the Society of Friends. The summit of the hill consists of a fine plateau, the highest point in the city, being 210 feet above tidewater. The view from it is superb. Almost the whole of the lower part of the park on both sides of the river is in sight, with the city and its hundreds of spires and towers in the distance, and immediately at the foot of the hill are the exhibition grounds and buildings. Adjoining the hill is the Belmont reservoir, the capacity of which is 36,000,000 gallons of water.

The road from George's Hill leaves the reservoir on the right, and passes over a plateau of considerable elevation to *Belmont*, one of the most prominent points within the limits of the park. This was the home of Judge Richard Peters, whose

FAIRMOUNT PARK FROM THE PENNSYLVANIA RAILROAD BRIDGE.



father, William Peters, purchased the property in 1742, and built the first house which stood there. This venerable building now constitutes the kitchens and ladies' restaurant of the present establishment. Richard Peters, the son of the founder of the estate, was born there in June, 1744, and resided there until his death in 1828. He served with distinction as an officer of the American army during the Revolution, was subsequently a Commissioner of the War Office, and after the establishment of the present government of the United States was a member of Congress, and a Judge of the United States District Court. He was one of the most prominent men of his day in Pennsylvania, and was the intimate friend of Washington, Jefferson, Hancock, the Adamsses, and others of the "fathers of the republic." He was as well known for his wit as for his more solid attainments, and his residence was the resort



DRINKING-FOUNTAIN ON THE WISSAHICKON.

of a brilliant and distinguished throng. Among the foreigners of distinction who were his guests were Lafayette, Steuben, Chastellux, Kosciusko, Pulaski, Talleyrand, and Louis Philippe.

The mansion is now used as a restaurant, and is the principal establishment of its kind within the park. The view from the verandah is beautiful, embracing as it does, the park, the river, and its bridges, the great exhibition buildings and the distant city.

A walk leads from Belmont through a picturesque glen to

the shore of the Schuylkill. Here the visitor is shown a small cottage which was the summer residence of Thomas Moore, the poet, during his stay in this country in 1804.

Adjoining the Belmont Mansion is the *Sawyer Observatory*, one of the most noted structures in the park. The observatory rises from the Belmont plateau, which is over 200 feet above tidewater, and is 170 feet high, or 100 feet above the highest point of the Centennial buildings. It was constructed by the inventor, Mr. L. B. Sawyer, of Boston. The trunk of the observatory is a wrought-iron tower, eight feet in diameter at the bottom and three feet in diameter at the top, constructed by the Whittier Machine Company of Boston. This tower is set in a foundation of Conshohocken stone, eighteen feet square and fourteen feet deep, laid in cement and dressed with granite. On the upper dressing of granite, which is one foot thick, there is ribbed iron plate, eight inches deep and thirteen feet square, bolted down with two inch bolts eight feet long. On the bed-plate are fastened ten heavy iron columns seven feet high, on which rests an iron ring eight feet in diameter (inside), weighing a ton and a half. This ring is riveted to the main shaft of the observatory. The shafting and machinery used in the observatory are attached to the columns supporting the ring, and the columns are also riveted to the central shaft.

The top of the tower is reached by an annular car encircling the shaft, and moved upwards from the base on the outside of the shaft. It is made of iron and wood, handsomely upholstered, and is capable of accommodating comfortably about thirty passengers. The sides are almost entirely of glass and small iron bars, so that the occupants may have an excellent view of the surroundings while they are ascending.

The car is hoisted (by means of a forty-horse power engine) by eight wire steel ropes, about three-quarters of an inch in diameter, and capable of sustaining eleven tons. These ropes pass over iron drums situated at the base of the shaft, connected with the foundation by iron columns, and turned by four-inch cast-steel shafts, worked by four worm-gears. The ropes pass up inside the shaft to the top, where they pass over eight wheels

or shives, and down outside the shaft. They are attached to the car at four points.

Outside the shaft there is a truss work of wrought-iron, of the same diameter at the top as at base, and intended to serve the two-fold object of guiding and supporting the car and strengthening the tower. The car runs on four guides, or points, which form a portion of the truss work, and is raised by a total strength of eighty-eight tons. The car and its thirty passengers are estimated to weigh about six tons. The car itself is counter-balanced by a weight, suspended inside the tower, of three tons, and the total weight to be raised, therefore, is about three tons. Supposing, therefore, that all the wire ropes but one were to break, the one remaining would be strong enough to raise nearly four times the contents of the car. In case of the breakage of *all* of the ropes there are four separate "checks" provided, any one of which would be amply sufficient to stop the downward passage of the car on the instant. By means of a powerful spring the breakage of the rope itself is made the means of throwing in a milled steel roll, clamped by a powerful wrought-iron clutch to the guide, which will stop the car immediately. The car when near the top encircles a gallery two and a half feet wide passing all the way round the shaft, and enclosed with a wire net work. From this gallery the visitors ascend by means of a stairway to the top of the tower, which is also enclosed with a wire netting, thus excluding the possibility of any one falling or jumping from it. From this point a flagstaff, thirty-five feet high, ascends. The space at top of the tower is twenty feet in diameter, and is capable of accommodating 125 or 130 persons comfortably.

At the base of the tower, and enclosing it, there is a building about sixty feet square, of an ornamental style of architecture, after designs by Mr. H. S. Schwartzman, architect of the Centennial Board of Finance. This building is used for offices, engine-room, reception-rooms for ladies, etc.

It is asserted that the observatory would be sufficiently strong to withstand almost any storm alone, but for additional security, and to obviate any vibrations in the building, the structure is

braced by eight guys of galvanized iron rope, an inch and a quarter in diameter, and each capable of sustaining twenty tons, anchored in masonry ten feet deep.

The total weight of the structure is eighty tons, and the total cost was \$40,000. The charge to visitors is 25 cents for adults, and 10 cents for children.

Beyond Belmont the main road passes through one of the finest portions of the park, and in a short while reaches Mount Prospect, a point from which a most extensive view of the park, the city, and the distant Delaware can be obtained. Beyond this the road passes to Chamouni, at the northern limit of the park, and descends to the Schuylkill, crosses it at the Falls bridge, and continues through the East Park to the Wissahickon.

The park is reached from the city by the Pennsylvania and Reading Railroads, the depot of the former line being at the Elm avenue entrance to the exhibition grounds, and those of the latter at the foot of the hill on which stands Memorial Hall, and at the foot of Belmont hill. A number of street railway lines also lead to the park and the exhibition grounds. Steamboats ply regularly on the Schuylkill between Fairmount, just above the dam, and the various landings within the park limits below the Falls.



CHAPTER V.

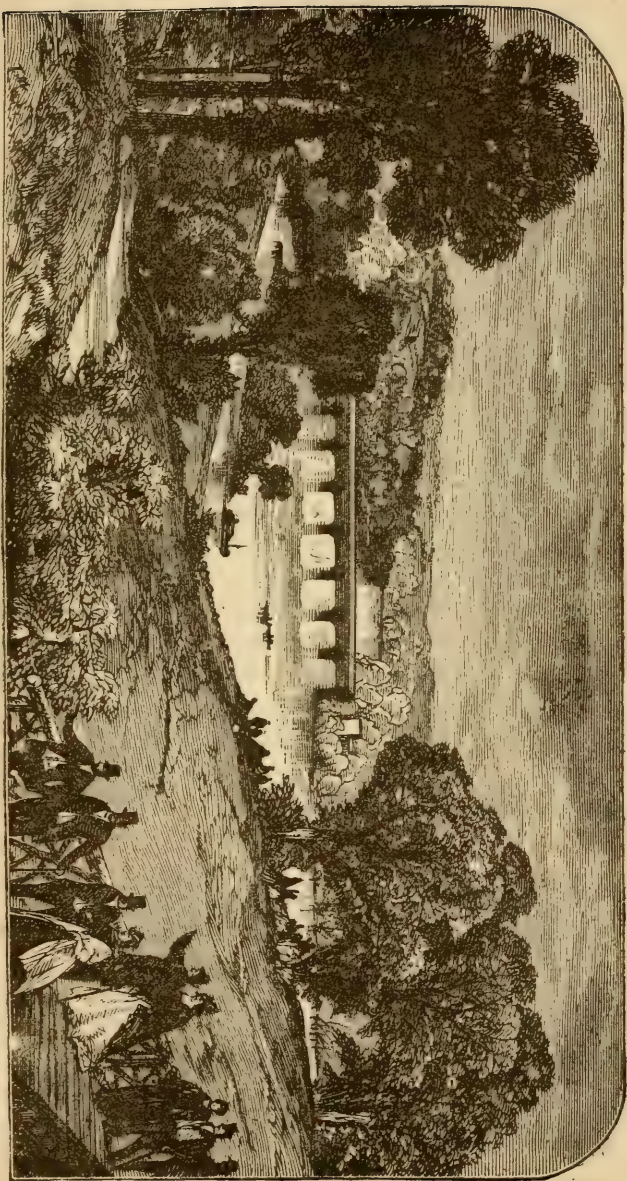
THE HISTORY OF THE CENTENNIAL EXHIBITION.

The First Proposals for the Exhibition—Initiatory Measures—Action of the City Councils of Philadelphia—The Memorial to Congress—The Act of Incorporation—Appointment of the Centennial Commission—Creation of the Board of Finance—Liberal Action of the City of Philadelphia—Donation of the Exhibition Grounds—The Formal Transfer—Proclamation of the President of the United States—The Invitation to Foreign Powers—The Law for the Free Entry of Exhibitors' Goods—The General Government Takes Part in the Exhibition—The Ground Broken, July 4th, 1874—Plans of the Commission—Circulars of the Director-General—Regulations for Exhibitors—Order of the Treasury Department—Work of the Board of Finance—Sales of Stock—The Bureau of Revenue—Its Successful Work—Sale of Medals—Appropriations by Pennsylvania and Philadelphia—Refusal of Congress to Aid the Exhibition—Report of the Board of Finance—Action of the States—Appropriations by Foreign Governments—Congress Appropriates a Million and a Half to the Exhibition—Third Annual Report of the Board of Finance—Reception of Goods—Completion of the Work—The System of Awards—The Centennial Calendar.

AS the close of the first century of the independence of the United States drew near, it was generally regarded as the duty of the nation to celebrate it in a manner worthy of the great fame and wealth of the republic.

Various plans for accomplishing this object were suggested, but none met with a national approval. In 1866 a number of gentlemen conceived the idea of celebrating the great event by an exhibition of the progress, wealth, and general condition of the republic, in which all the nations of the world should be invited to participate. The honor of originating and urging this plan upon the public belongs to the Hon. John Bigelow, formerly minister from the United States to France; General Charles B. Norton, who had served as a commissioner

COLUMBIA BRIDGE OVER THE SCHUYLKILL, FROM THE RUSTIC BRIDGE IN THE WEST PARK.



of the United States at the Paris exposition of 1867; Professor John L. Campbell, of Wabash College, Indiana; and Colonel M. Richards Mucklé, of Philadelphia. The plan proposed by these gentlemen was not generally received with favor at first. It was argued in opposition to it that the great exhibitions of Europe were the work of the governments of the countries in which they were held; that under our peculiar system the government could not take the same part in our exhibition; and that it would thus be thrown into the hands of private parties and would result in failure. The city of Philadelphia was designated as the place at which the exhibition should be held. This feature of the plan aroused considerable opposition growing out of local jealousies. It was argued by the friends of the scheme that Philadelphia was fairly entitled to the honor, inasmuch as it had been the scene of the signing of the Declaration of Independence; and that the city was also admirably located for such an exhibition, being easily accessible from all parts of the Union and from Europe.

The friends of the scheme labored hard to overcome the objections urged against it, and had the satisfaction of seeing their plans become more popular every day. The matter was ably discussed in the press of the country, and at length was taken in hand by the Franklin Institute of Philadelphia, which body petitioned the municipal authorities to grant the use of a portion of Fairmount Park for the purposes of a centennial celebration. This petition was laid before the Select Council by Mr. John L. Shoemaker, one of that body, who offered a resolution providing for the appointment of a joint commission of seven members from each chamber to take the subject into consideration. The resolution was adopted, and Mr. Shoemaker was appointed president of the joint commission.

After a careful consideration of the subject, the commission decided to lay the plan before Congress. The Legislature of Pennsylvania now came to the assistance of the commission, and adopted a resolution requesting the Congress of the United States to take such action as in its judgment should seem wise in favor of an international celebration in the city of Philadel-

phia of the one hundredth anniversary of American independence. The Legislature also appointed a committee of ten to accompany the Philadelphia commission to Washington to present a memorial upon the subject to Congress. The memorial of the committees was presented to Congress by the Hon. William D. Kelley, a representative from Pennsylvania, who urged its adoption by that body, and the selection of Philadelphia as the scene of the celebration, as that city had witnessed the adoption, signing, and proclamation of the Declaration of Independence.

Early in March, 1870, Mr. Daniel J. Morrell, of Pennsylvania, presented a bill in the lower House of Congress making provision for the proposed exhibition. The bill was several times amended, and was finally adopted by Congress on the 3d of March, 1871. It provided for the appointment by the President of the United States of a commissioner and alternate commissioner from each State and Territory of the Union, who were to be nominated by the Governors of the States and Territories from which they were appointed. Philadelphia was selected as the place at which the exhibition should be held; and it was expressly declared that the United States should not be liable for any of the expenses attending the exhibition.

The Act of Congress was as follows:

AN ACT to provide for celebrating the one hundredth anniversary of the American Independence, by holding an International Exhibition of Arts, Manufactures, and Products of the Soil and Mine, in the city of Philadelphia, and State of Pennsylvania, in the year eighteen hundred and seventy-six.

Whereas, The Declaration of Independence of the United States of America was prepared, signed, and promulgated in the year seventeen hundred and seventy-six, in the city of Philadelphia; and, *whereas*, it behooves the people of the United States to celebrate, by appropriate ceremonies, the Centennial anniversary of this memorable and decisive event, which constituted the Fourth Day of July, Anno Domini seventeen hundred and seventy-six, the birthday of the nation; and, *whereas*, it is deemed fitting that the completion of the first century of our

national existence shall be commemorated by an exhibition of the natural resources of the country and their development, and of its progress in those arts which benefit mankind, in comparison with those of older nations; and, whereas, no place is so appropriate for such an exhibition as the city in which occurred the event it is designed to commemorate; and, whereas, as the exhibition should be a national celebration, in which the people of the whole country should participate, it should have the sanction of the Congress of the United States; therefore,

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That an exhibition of American and foreign arts, products and manufactures shall be held under the auspices of the Government of the United States, in the city of Philadelphia, in the year eighteen hundred and seventy-six.

SECTION 2. That a commission, to consist of not more than one delegate from each State and from each Territory of the United States, whose functions shall continue until the close of the exhibition, shall be constituted, whose duty it shall be to prepare and superintend the execution of a plan for holding an exhibition, and, after conference with the authorities of the city of Philadelphia, to fix upon a suitable site within the corporate limits of the said city where the exhibition shall be held.

SEC. 3. That said commissioners shall be appointed within one year from the passage of this act by the President of the United States, on the nomination of the Governors of the States and Territories respectively.

SEC. 4. That in the same manner there shall be appointed one commissioner from each State and Territory of the United States, who shall assume the place and perform the duties of such commissioner and commissioners as may be unable to attend the meetings of the commission.

SEC. 5. That the commission shall hold its meetings in the city of Philadelphia, and that a majority of its members shall have full power to make all needful rules for its government.

SEC. 6. That the commission shall report to Congress, at the first session after its appointment, a suitable date for opening



THE DRIVE—WISSAHICKON.

and for closing the exhibition ; a schedule of appropriate ceremonies for opening or dedicating the same ; a plan or plans of the buildings ; a complete plan for the reception and classification of articles intended for exhibition ; the requisite custom-house regulations for the introduction into this country of the articles from foreign countries intended for exhibition ; and such other matter as in their judgment may be important.

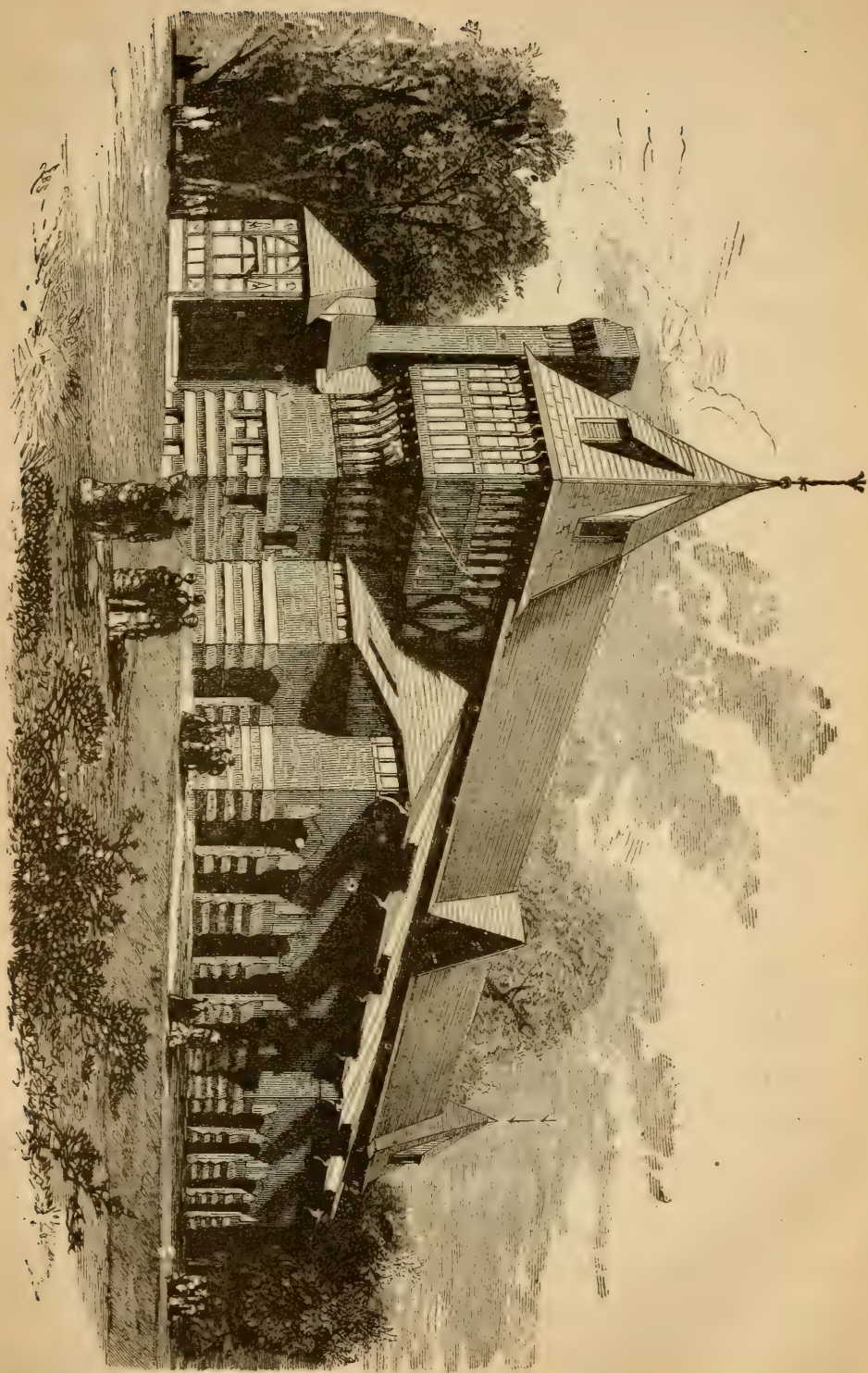
SEC. 7. That no compensation for services shall be paid to the commissioners or other officers provided by this act from the treasury of the United States ; *and the United States shall not be liable for any expenses attending such exhibition, or by reason of the same.*

SEC. 8. That whenever the President shall be informed by the Governor of the State of Pennsylvania that provision has been made for the erection of suitable buildings for the purpose, and for the exclusive control by the commission herein provided for, of the proposed exhibition, the President shall, through the Department of State, make proclamation of the same, setting forth the time at which the exhibition will open and the place at which it will be held ; and he shall communicate to the diplomatic representatives of all nations copies of the same, together with such regulations as may be adopted by the commissioners for publication in their respective countries.

Approved *March 3d*, 1871.

The President having approved the bill it became a law. During the year 1871 he appointed the commissioners provided for by the act of Congress. They were invited to assemble at Philadelphia on the 4th of March, 1872 ; and on that day commissioners from twenty-four States, three Territories, and the District of Columbia, met at the Continental hotel in Philadelphia. A temporary organization was effected by the election of David Atwood, of Wisconsin, as chairman, and J. N. Baxter, of Vermont, as secretary. The commissioners then repaired in a body to Independence Hall, where they were officially received and welcomed by Mayor Stokley. General Joseph R. Hawley, of Connecticut, responded to this address on behalf of the commissioners, who then repaired to the chamber of the Common

ELEPHANT HOUSE, ZOOLOGICAL GARDENS.



Council. After a prayer by the Rev. Dr. Hutter, the commissioners proceeded to business. On the 5th a permanent organization was effected, officers were elected, nine standing committees were appointed, and the *United States Centennial Commission* was definitely organized.

Several changes have been made since 1872, and at present the commission is constituted as follows :

PRESIDENT—Hon. Joseph R. Hawley.

VICE-PRESIDENTS—Hon. Orestes Cleveland, Hon. John Dunbar Creigh, Hon. Robert Lowry, Hon. Robert Mallory, Hon. Thos. H. Coldwell, Hon. John McNeill, and Hon. Wm. Gurney.

SECRETARY—Professor John L. Campbell.

DIRECTOR-GENERAL—Hon. Alfred T. Goshorn.

COUNSELLOR AND SOLICITOR—John L. Shoemaker.

The members of the Centennial Commission for 1876 are :

ALABAMA—Richard M. Nelson, James L. Cooper.

ARIZONA—Richard C. McCormick, John Wasson.

ARKANSAS—George W. Lawrence, George E. Dodge.

CALIFORNIA—John Dunbar Creigh, Benjamin P. Kooser.

COLORADO—J. Marshal Paul, N. C. Meeker.

CONNECTICUT—Joseph R. Hawley, William Phipps Blake.

DAKOTAH—J. A. Burbank, Solomon L. Spink.

DELAWARE—John K. Kane, John H. Rodney.

DISTRICT OF COLUMBIA—James E. Dexter, Lawrence A. Gobright.

FLORIDA—T. H. Osborn, J. T. Bernard.

GEORGIA—George Hillyer, Richard Peters, Jr.

IDAHO—Thomas Donaldson, C. W. Moore.

ILLINOIS—Frederick L. Mathews, Lawrence Weldon.

INDIANA—John L. Campbell, Franklin C. Johnson.

IOWA—Robert Lowry, Coker F. Clarkson.

KANSAS—John A. Martin, George A. Crawford.

KENTUCKY—Robert Mallory, Smith M. Hobbs.

LOUISIANA—John Lynch, Edward Pennington.

MAINE—Joshua Nye, Charles H. Haskell.

MARYLAND—J. H. B. Latrobe, S. M. Shoemaker.

MASSACHUSETTS—George B. Loring, William B. Spooner.

MICHIGAN—James Birney, Claudius B. Grant.

MINNESOTA—J. Fletcher Williams, W. W. Folwell.

MISSISSIPPI—O. C. French, M. Edwards.

MISSOURI—John McNeil, Samuel Hayes.

MONTANA—J. P. Woolman, Patrick A. Largey.

NEBRASKA—Henry S. Moody, R. W. Furnas.
 NEVADA—William Wirt McCoy, James W. Haines.
 NEW HAMPSHIRE—Ezekiel A. Straw, M. V. B. Edgally.
 NEW JERSEY—Orestes Cleveland, John G. Stevens.
 NEW MEXICO—Eldridge W. Little, Stephen B. Elkins.
 NEW YORK—N. M. Beckwith, Charles P. Kimball.
 NORTH CAROLINA—Samuel F. Phillips, Jonathan W. Albertson.
 OHIO—Alfred T. Goshorn, Wilson W. Griffith.
 OREGON—James W. Virtue, Andrew J. Dufur.
 PENNSYLVANIA—Daniel J. Morrell, Asa Packer.
 RHODE ISLAND—George H. Corliss, Royal C. Taft.
 SOUTH CAROLINA—William Gurney, Archibald Cameron.
 TENNESSEE—Thomas H. Coldwell, William F. Prosser.
 TEXAS—William H. Parsons, John C. Chew.
 UTAH—William Haydon, Charles R. Gilchrist.
 VERMONT—Middleton Goldsmith, Henry Chase.
 VIRGINIA—F. W. M. Holliday, Edmund R. Bagwell.
 WASHINGTON TERRITORY—Ellwood Evans, Alexander S. Abernethy.
 WEST VIRGINIA—Alexander R. Boteler, Andrew J. Sweeney.
 WISCONSIN—David Atwood, Edward D. Holton.
 WYOMING—Joseph M. Carey, Robert H. Lamborn.

In order to provide the necessary funds for the exhibition, Congress, on the 1st of June, 1872, adopted a bill creating a "Centennial Board of Finance," which was authorized to issue stock in shares of ten dollars each, the whole amount issued not to exceed ten millions of dollars. The commissioners adopted rules for the organization and government of this board, and directed that the books for subscriptions to the stock should be opened on the 21st of November, 1872, and should remain open for one hundred days. At the same time the President and Secretary of the Centennial Commission issued an address to the people of the United States, setting forth the objects of the exhibition, and asking their support and assistance in carrying the enterprise through to success.

The members of the Centennial Board of Finance were appointed by the stockholders at a meeting held in April, 1873. A majority of the members of the board were chosen from Philadelphia in order that, these gentlemen being residents of the city, there might always be a quorum for the transaction of business present at the meetings of the board. The board was authorized to issue bonds to an amount not to exceed the capi-



THE WISSAHICKON AT CHESTNUT HILL.

tal, to be secured upon the exhibition buildings and other property in possession of the commission, and upon its prospective revenues. The board was also ordered to begin at once the work of preparing the grounds and erecting the necessary buildings for the exhibition.

The city of Philadelphia, with the liberality which has characterized its whole treatment of the exhibition scheme, at once set apart the portion of Fairmount Park lying below Belmont and George's Hill, and constituting the old Lansdowne estate, for the purposes of the exhibition. This magnificent domain was formally transferred to the Centennial Commission on the 4th of July, 1873. It comprises a tract of four hundred and fifty acres, and is in all respects the best suited to the needs of the exhibition of any location in the Union. The transfer was made in presence of an immense throng of citizens, and with imposing ceremonies in which the military and civic organizations of Philadelphia took part. The ceremonies were opened with a prayer by Bishop Simpson, of the Methodist Episcopal Church, after which Hon. Morton McMichael, President of the Park Commission, formally surrendered the grounds to General J. R. Hawley, President of the Centennial Commission, in an appropriate address. After reciting the reasons which had induced the city to make this grant, Mr. McMichael concluded as follows :

“GENERAL HAWLEY: To you, sir, as the representative of the Centennial Commission of the United States, in the constructive presence of the Chief Magistrate of the nation and the actual presence of his constitutional advisers—in the presence of the Governor of the Commonwealth of Pennsylvania and his official staff—in the presence of the Mayor and the Councils of Philadelphia—in the presence of these dignitaries gathered from all parts of the Union to mark the national character of the ceremony—in the presence of this multitude of my fellow-citizens, who are here to sanction and approve the act—in behalf of the Commissioners of Fairmount Park, to whom its legal custody has been confided,—I now, publicly and formally, transfer to your keeping all the land designated and described

in the maps and papers herewith presented. And in the same behalf I hereby confer on the Centennial Commission full power to hold and possess and employ this land, for so long and in such manner as the needs of the International Exposition, instant and prospective, may require. And, sir, this transfer, which fulfils an essential provision of the law creating your commission, being thus made, who shall doubt that—stirred by memories of the turbulent past, urged by knowledge of the flourishing present, inspired by anticipations of the promising future—the people of the several States, and the States themselves in their sovereign capacities, as well as the Congress of the United States and all the branches of the Federal Government, will so assist your endeavors that in 1876 you will be enabled to present to the world a spectacle which, while typical of the skill and culture and ingenuity of the older nations, will conspicuously demonstrate what the thrift, intelligence, enterprise and energy of our own, under the beneficent rule of free institutions, and with a due sense of reverence for Almighty God, have achieved in a single century of existence.”

General Hawley responded in an eloquent address of acceptance, at the conclusion of which he said, “In token of the United States Centennial Commission now takes possession of these grounds for the purpose we have described, let the flag be unfurled and duly saluted.” The stars and stripes were then raised, and at the same moment the trumpeter of the City Troop gave a signal which was answered by a salute of thirteen guns from the Keystone Battery.

When the applause had subsided, the Hon. John F. Hart-ranft, Governor of Pennsylvania, spoke as follows :

“By the act of Congress creating a commission charged with the holding of the Centennial Exhibition in this city in the year 1876, it was made the duty of the Governor of Pennsylvania to certify to the President of the United States the fact that provision has been made for the erection of suitable buildings for said Exhibition, whenever he became satisfied that such result had been achieved.

“I hold in my hand a joint certificate, signed by General

Joseph R. Hawley, President of the Centennial Commission, and Mr. John Welsh, Chairman of the Finance Committee of said Commission, to the effect that such provision has been made. Knowing, as you all know, the wisdom and integrity of these gentlemen, I have felt it to be my duty to certify to the Presi-



ON THE WISSAHICKON.

dent of the United States, as required by the act of Congress, and the certificate reads as follows :

“To the President of the United States :

“Pursuant to the provisions of section 8 of the act of Congress approved March 3d, 1871, providing for a National Celebration of the one hundredth anniversary of American Independence, a copy of which act is appended hereto, the undersigned,

Governor of the State of Pennsylvania, has the honor to inform the President that provision has been made for the erection of suitable buildings for the purposes of the International Exhibition of Arts, Manufactures and Products of the Soil and Mine, proposed to be held in Philadelphia, in the year 1876, and for the exclusive control of the said Exhibition by the United States Centennial Commission.

“The undersigned makes this announcement to enable the President, in accordance with the requirements of the act above mentioned, to issue his proclamation concerning the said Exhibition, and to cause official invitations to be given to foreign governments to participate therein.

“JOHN F. HARTRANFT.

“HARRISBURG, *June 24th*, 1873.’

“So far, this grand project has, to some extent at least, appeared local—necessarily so by the conditions imposed; but henceforth it will be purely national. If a failure, it will be a national failure. If a success, a national success.

“We have assembled here to dedicate a portion of this beautiful Park to the uses of this great International Exhibition, which is to commemorate the anniversary of our country’s birth. Upon the threshold of the century to expire in 1876, thirteen poor and feeble colonies, with no common ties other than their love of liberty and their hatred of oppression, declared their independence. These thirteen colonies, with their offspring, now increased in number to thirty-seven, stretch their empire across a continent, and afford the grandest exhibition of a nation’s progress in the world’s history. In all the wondrous changes wrought in the nineteenth century, none are so wondrous and conspicuous as the industrious, moral and physical growth of this our native land. With those powerful auxiliaries, steam and the telegraph, both of which our country gave to mankind, we are striding with majestic steps toward a dominion unrivalled by any nation on the face of the earth. Let us, then, from every State—north, south, east and west—bring to this great city, the consecrated place where our liberty was born, the evidences of

our culture, the proofs of our skill, and our vast and varied resources, that the world may have a glimpse of our enlargement, industry, wealth and power. And to the myriads who will gather here from every clime we must be ready to accord a welcome in keeping with the dignity and magnitude of the country.

“To this city, then, and to the Exhibition the public bids welcome the people of every nationality, assuring them of a cordial reception, and just and generous recognition. And here, too, let our own people gather, and garnering new and fresh ideas from a survey of the world’s arts and industries, let us dedicate ourselves to a higher civilization, to more extensive fields of development, to more liberal and more diffused education, to the purification of our institutions, and the preservation of the liberty which is the foundation-stone of our happiness and prosperity as a people.”

The following is a copy of the certificate referred to by Governor Hartranft:

“The undersigned has the honor to report to the President, in order that it may be officially announced in such proclamation as he may be pleased to issue, under the provisions of section 8 of the act of Congress, approved March 3d, 1871, relating to the International Exhibition, to be held in Philadelphia in 1876, that it was decided by the United States Centennial Commission, at a meeting held on the 24th of May, 1872, that the Exhibition shall be opened on the 19th of April, 1876, and closed on the 19th of October, 1876.

“The undersigned has also the honor to transmit, for the information of foreign governments, a copy of the General Regulations adopted by the Commission on the 24th of May, 1872.

“Respectfully submitted,

“J. R. HAWLEY,

“President of the United States Centennial Commission.

“PHILADELPHIA, *June 20th*, 1873.”

Hon. Morton McMichael then introduced Hon. George M. Robeson, Secretary of the Navy, who appeared as the delegated representative of the President of the United States. He said :

“Prevented himself from being present on this interesting occasion, only by the calls of imperative personal duty, the President of the United States has directed me, as his representative, and as the representative of the State Department for the occasion, to make by his authority and in his name the following proclamation :

“By the President of the United States of America.

“A PROCLAMATION :

“*Whereas*, By the act of Congress approved March 3d, 1871, providing for a National Celebration of the one hundredth anniversary of the Independence of the United States, by the holding of an International Exhibition of Arts, Manufactures and Products of the Soil and Mine, in the city of Philadelphia, in the year 1876, it is provided as follows :

“That whenever the President shall be informed by the Governor of the State of Pennsylvania that provision has been made for the erection of suitable buildings for the purpose, and for the exclusive control by the Commission herein provided for of the proposed Exhibition, the President shall, through the Department of State, make proclamation of the same, setting forth the time at which the Exhibition will open, and the place at which it will be held ; and he will communicate to the diplomatic representatives of all nations copies of the same, together with such regulations as may be adopted by the Commissioners, for publication in their respective countries ; and

“*Whereas*, His Excellency, the Governor of the said State of Pennsylvania, did, on the 24th day of June, 1873, inform me that provision had been made for the erection of said buildings, and for the exclusive control, by the Commission provided for in the said act, of the proposed Exhibition ; and

“*Whereas*, The President of the United States Centennial Commission has officially informed me of the dates fixed for the opening and closing of the said Exhibition, and the place at which it is to be held ;

“Now, therefore, be it known that I, Ulysses S. Grant, President of the United States, in conformity with the provisions of the act of Congress aforesaid, do hereby declare and proclaim that there will be held, at the city of Philadelphia, in the State of Pennsylvania, an International Exhibition of Arts, Manufactures, and Products of the Soil and Mine, to be opened on



DRIVE IN FAIRMOUNT PARK.

the 19th day of April, Anno Domini 1876, and be closed on the 19th day of October in the same year.

“And in the interest of peace, civilization and domestic and international friendship and intercourse, I commend the celebration and Exhibition to the people of the United States; and in behalf of this government and people, I cordially commend them to all nations who may be pleased to take part therein.

"In testimony whereof I have hereunto set my hand and caused the seal of the United States to be affixed.

"Done at the city of Washington, this 3d day of July, 1873, and of the Independence of the United States of America the ninety-seventh.

"U. S. GRANT.

"By the President,

"HAMILTON FISH, *Secretary of State.*"

"GENERAL REGULATIONS.

"1. The International Exhibition of 1876 will be held in Fairmount Park, in the city of Philadelphia, in the year 1876.

"2. The date of opening the Exhibition will be April 19th, 1876, and of closing will be October 19th, 1876.

"3. A cordial invitation is hereby extended to every nation of the earth to be represented by its arts, industries, progress and development.

"4. A formal acceptance of this invitation is requested previous to March 4th, 1874.

"5. Each nation accepting this invitation is requested to appoint a Commission, through which all matters pertaining to its own interests shall be conducted. For the purpose of convenient intercourse and satisfactory supervision, it is especially desired that one member of each such Commission be designated to reside at Philadelphia until the close of the Exposition.

"6. The privileges of exhibitors can be granted only to citizens of countries whose governments have formally accepted the invitation to be represented and have appointed the aforementioned Commission, and all communications must be made through the Governmental Commissions.

"7. Applications for space within the Exposition buildings, or in the adjacent buildings and grounds under the control of the Centennial Commission, must be made previous to March 4th, 1875.

"8. Full diagrams of the buildings and grounds will be furnished to the Commissioners of the different nations which shall accept the invitation to participate.

"9. All articles intended for exhibition, in order to secure proper position and classification, must be in Philadelphia on or before January 1st, 1876.

"10. Acts of Congress pertaining to custom-house regulations, duties, etc., together with all special regulations adopted

by the Centennial Commission in reference to transportation, allotment of space, classification, motive power, insurance, police rules, and other matters necessary to the proper display and preservation of materials, will be promptly communicated to the accredited representatives of the several governments co-operating in the Exposition."



ON THE WISSAHICKON DRIVE.

The ceremonies concluded with a grand military review, and were followed at night by a display of fireworks in the park.

On the 5th of July, 1873, the Secretary of State of the United States forwarded the President's proclamation to the various ministers from foreign countries residing at the national capital, together with the following official note:

"DEPARTMENT OF STATE, }
"WASHINGTON, D. C., July 5th, 1873. }

"SIR:—I have the honor to enclose, for the information of the government of ———, a copy of the President's proclamation, announcing the time and place of holding an International Exhibition of Arts, Manufactures, and Products of the

Soil and Mine, proposed to be held in the year eighteen hundred and seventy-six.

“The Exhibition is designed to commemorate the Declaration of the Independence of the United States, on the one hundredth anniversary of that interesting and historic national event, and at the same time to present a fitting opportunity for such display of the results of art and industry of all nations as will serve to illustrate the great advances attained, and the successes achieved, in the interest of progress and civilization during the century which will have then closed.

“In the law providing for the holding of the Exhibition, Congress directed that copies of the proclamation of the President, setting forth the time of its opening and the place at which it was to be held, together with such regulations as might be adopted by the Commissioners of the Exhibition, should be communicated to the diplomatic representatives of all nations. Copies of those regulations are herewith transmitted.

“The President indulges the hope that the government of _____ will be pleased to notice the subject, and may deem it proper to bring the Exhibition and its objects to the attention of the people of that country, and thus encourage their co-operation in the proposed celebration. And he further hopes that the opportunity afforded by the Exhibition for the interchange of national sentiment and friendly intercourse between the people of both nations may result in new and still greater advantages to science and industry, and at the same time serve to strengthen the bonds of peace and friendship which already happily subsist between the government and people of _____ and those of the United States.

“I have the honor to be, sir,

“With the highest consideration,

“Your obedient servant,

“_____.”

In June, 1874, the following bill requesting the President to invite foreign nations to take part in the Exhibition was passed

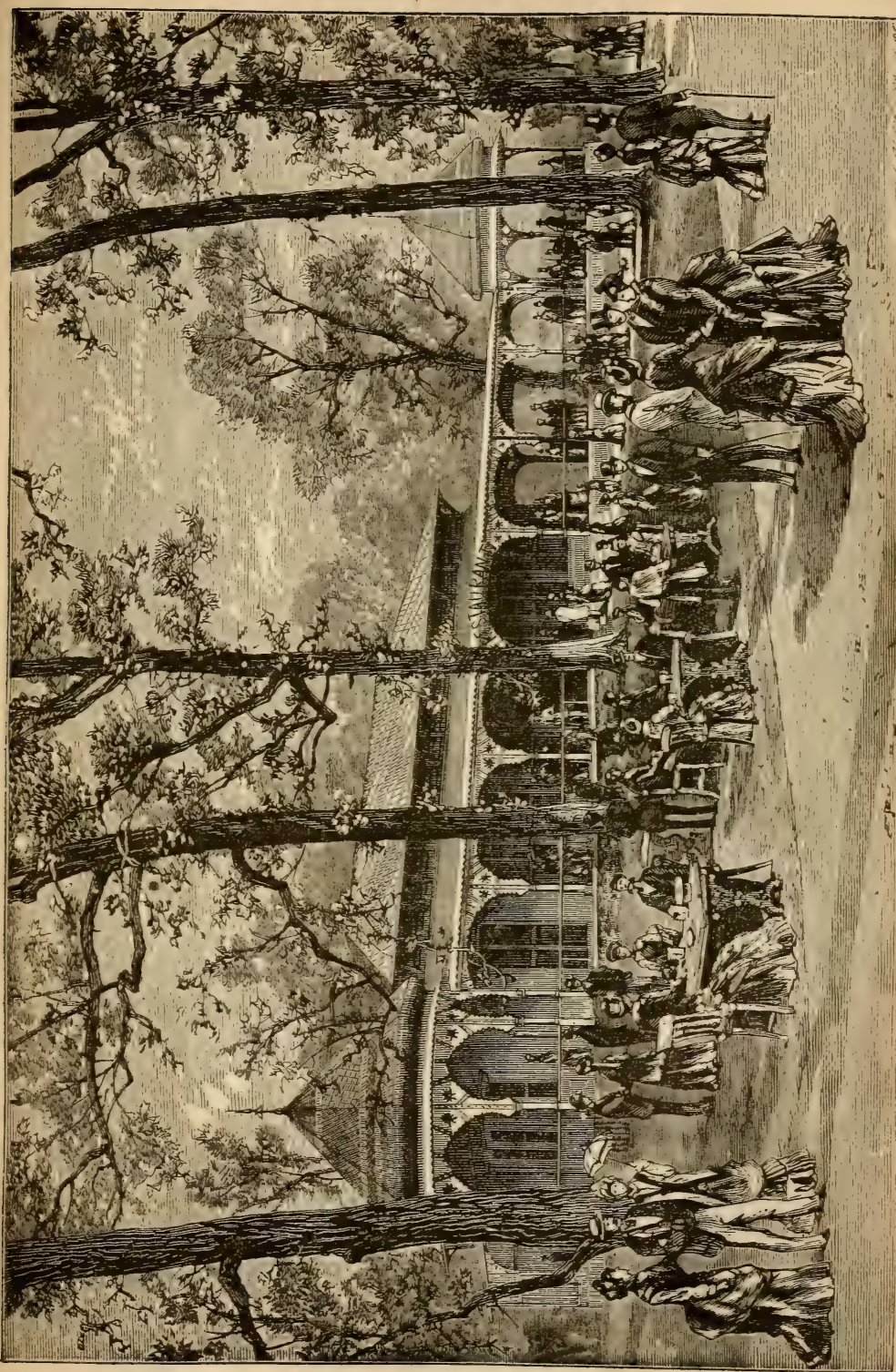
by both Houses of Congress and approved by the President on the 5th of June :

"Whereas, At various International Exhibitions which have been held in foreign countries, the United States have been represented in pursuance of invitations given by the governments of those countries, and accepted by our government, therefore,

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the President be requested to extend, in the name of the United States, a respectful and cordial invitation to the governments of other nations to be represented and take part in the International Exposition to be held at Philadelphia, under the auspices of the government of the United States, in the year 1876. Provided, however, that the United States shall not be liable, directly or indirectly, for any expense attending such Exposition, or by reason of the same."

The invitation was duly extended by the President to the various nations of the world to take part in the Exhibition. The nations which accepted this invitation and have taken part in the Exhibition are as follows :

Argentine Confederation.	Italy.
Austria.	Japan.
Belgium.	Liberia.
Bolivia.	Mexico.
Brazil.	Netherlands.
Chili.	Norway.
China.	Nicaragua.
Denmark.	Orange Free State—Africa.
Ecuador.	Persia.
Egypt.	Peru.
France, including Algeria.	Portugal.
German Empire.	Russia.
Great Britain, including her Colonies.	Siam.
Greece.	Spain.
Gautemala and Salvador.	Sweden.
Hawaii	Switzerland.
Hayti.	Tunis.
Honduras.	Turkey.
	United States of Colombia.
	Venezuela.



RESTAURANT IN THE ZOOLOGICAL GARDENS.

In order to remove all difficulties in the way of the complete success of the *international* character of the Exhibition, Congress enacted the following bill, which was approved by the President on the 18th of June, 1874, for the purpose of enabling foreign exhibitors to enter their goods free of duty :

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That all articles which shall be imported for the sole purpose of exhibition at the International Exhibition to be held in the city of Philadelphia, in the year 1876, shall be admitted without the payment of duty or of customs, fees, or charges, under such regulations as the Secretary of the Treasury shall prescribe: Provided, That all such articles as shall be sold in the United States or withdrawn for consumption therein at any time after such importations, shall be subject to the duties, if any, imposed on like articles by the revenue laws in force at the date of importation: And provided further, That in case any article imported under the provisions of this act shall be withdrawn for consumption or shall be sold without payment of duty as required by law, all the penalties prescribed by the revenue laws shall be applied and enforced against such articles and against the persons who may be guilty of such withdrawal or sale."

Previous to this the general government of the United States had decided to take part in the Exhibition as an exhibitor, and on the 24th of January, 1874, the President issued the following order directing the various executive departments of the government to take the necessary measures for their proper representation :

"EXECUTIVE ORDER BY THE PRESIDENT OF THE UNITED STATES.

"Whereas, it has been brought to the notice of the President of the United States that in the International Exhibition of Arts, Manufactures, and Products of the Soil and Mine, to be held in the city of Philadelphia, in the year 1876, for the purpose of celebrating the one hundredth anniversary of the Inde-

pendence of the United States, it is desirable that from the Executive Departments of the Government of the United States in which there may be articles suitable for the purpose intended, there should appear such articles and materials as will, when presented in a collective exhibition, illustrate the functions and administrative faculties of the government in time of peace, and its resources as a war power, and thereby serve to demonstrate the nature of our institutions and their adaptation to the wants of the people: Now, for the purpose of securing a complete and harmonious arrangement of the articles and materials designed to be exhibited from the Executive Department of the Government it is ordered that a board, to be composed of one person to be named by the head of each of the Executive Departments which may have articles and materials to be exhibited, and also of one person to be named in behalf of the Smithsonian



BRIDGE OVER THE WISSAHICKON AT VALLEY GREEN.

Institution, and one to be named in the behalf of the Department of Agriculture, be charged with the preparation, arrangement, and safe-keeping of such articles and materials as the heads of the several Departments and the Commissioner of Agriculture and the Director of the Smithsonian Institution may respectively decide shall be embraced in the collection; that one of the persons thus named, to be designated by the President, shall be chairman of such board, and that the board appoint from their own number such other officers as they may

think necessary, and that the said board when organized shall be authorized under the direction of the President to confer with the executive officers of the Centennial Exhibition in relation to such matters connected with the subject as may pertain to the respective departments having articles and materials on exhibition, and that the names of the persons thus selected by the heads of the several departments, the Commissioner of Agriculture, and the Director of the Smithsonian Institution, shall be submitted to the President for designation.

“By order of the President :

“(Signed)

“HAMILTON FISH,

“*Secretary of State.*

“WASHINGTON, *January 23d, 1874.*”

In accordance with the above order, the President appointed a board composed of a representative from each of the Executive Departments of the Government, except the Department of State and the Attorney-General's Department; but including the Department of Agriculture and the Smithsonian Institution. The board is composed as follows :

WAR DEPARTMENT—Col. C. S. Lyford (Chairman), *Ordnance Bureau.*

TREASURY DEPARTMENT—Hon. R. W. Talyer, *1st Controller of the Treasury.*

NAVY DEPARTMENT—Admiral Thornton A. Jenkins, *U. S. Navy.*

INTERIOR DEPARTMENT—John Eaton, *Commissioner of Education.*

POST-OFFICE DEPARTMENT—Dr. Chas. F. McDonald, *Chief of Money Order Department.*

AGRICULTURAL DEPARTMENT—Wm. Saunders, *Superintendent of Propagating Garden.*

SMITHSONIAN INSTITUTION—Prof. S. F. Baird, *Assistant Secretary of the Smithsonian Institution and U. S. Fishery Commissioner.*

This board was charged with the duty of perfecting a collective Exhibition, that shall illustrate the functions and administrative faculties of the government in time of peace and its resources as a war power.

On the 4th of July, 1874, the ground was formally broken in Fairmount Park for the Exhibition buildings. The occasion was celebrated with the most imposing demonstration ever

witnessed in Philadelphia, and in which thousands of the citizens took part. The celebration being also the ninety-eighth anniversary of the independence of the United States, was largely national in its character, and drew vast crowds from other parts of the Union to witness it. It will long be remembered by Philadelphia as one of the most memorable days in her history.

The work being now fairly begun, the following regulations were issued by the Director-General. They so fully describe the purposes of the projectors of the Exhibition that we quote them entire :

“GENERAL REGULATIONS FOR EXHIBITORS IN THE UNITED STATES.

“The Exhibition will be held in Fairmount Park, in the city of Philadelphia, and will be opened on the 10th day of May, 1876, and closed on the 10th day of November following.

“The ten departments of the classification which will determine the relative location of articles in the Exhibition—except in such collective exhibitions as may receive special sanction—and also the arrangement of names in the catalogue, are as follows :

“I. Raw Materials—Mineral, Vegetable, and Animal.

“II. Materials and Manufactures used for Food, or in the Arts, the result of Extractive or Combining Processes.

“III. Textile and Felted Fabrics ; Apparel, Costumes, and Ornaments for the person.

“IV. Furniture and Manufactures of general use in construction and in dwellings.

“V. Tools, Implements, Machines, and Processes.

“VI. Motors and Transportation.

“VII. Apparatus and Methods for the increase and diffusion of knowledge.

“VIII. Engineering, Public Works, Architecture, etc.

“IX. Plastic and Graphic Arts.

“X. Objects illustrating efforts for the improvement of the Physical, Intellectual, and Moral Condition of Man.

“Applications for space and negotiations relative thereto should be addressed to the Director-General, International Exhibition, Philadelphia, Penna.

“Exhibitors will not be charged for space.

“A limited quantity of steam and water-power will be supplied gratuitously. The quantity of each will be settled definitively at the time of the allotments of space. Any power required by the exhibitor in excess of that allowed will be furnished by the Commission at a fixed price. Demands for such excess of power must also be settled at the time of the allotment of space.

“Exhibitors must provide, at their own cost, all show-cases, shelving, counters, fittings, etc., which they may require; and all countershafts, with their pulleys, belting, etc., for the transmission of power from the main shafts in the Machinery Hall. All arrangements of articles and decorations must be in conformity with the general plan adopted by the Director-General.

“Special constructions of any kind, whether in the buildings or grounds, can only be made upon the written approval of the Director-General.

“The Commission will take precautions for the safe preservation of all objects in the Exhibition; but it will in no way be responsible for damage or loss of any kind, or for accidents by fire or otherwise, however originating.

“Favorable facilities will be arranged by which exhibitors may insure their own goods.

“Exhibitors may employ watchmen of their own choice to guard their goods during the hours the Exhibition is open to the public. Appointments of such watchmen will be subject to the approval of the Director-General.

“Exhibitors, or such agents as they may designate, shall be responsible for the receiving, unpacking, and arrangement of objects, as well as for their removal at the close of the Exhibition.

“The transportation, receiving, unpacking and arranging of the products for exhibition will be at the expense of the exhibitor.

“The installation of heavy articles requiring foundations should, by special arrangement, be begun as soon as the progress of the work upon the buildings will permit. The general reception of articles at the Exhibition buildings will be commenced

on January 1st, 1876, and no articles will be admitted after March 31st, 1876.

“Space not occupied on the 1st of April, 1876, will revert to the Director-General for reassignment.

“If products are not intended for competition, it must be so stated by the exhibitor; and they will be excluded from the examination by the International Juries.

“If no authorized person is at hand to receive goods on their arrival at the Exhibition building, they will be removed without delay, and stored at the cost and risk of whomsoever it may concern.

“Articles that are in any way dangerous or offensive, also patent medicines, nostrums, and empirical preparations whose ingredients are concealed, will not be admitted to the Exhibition.

“The removal of goods will not be permitted prior to the close of the Exhibition.

“Sketches, drawings, photographs, or other reproductions of articles exhibited, will only be allowed upon the joint assent of the exhibitor and the Director-General; but views of portions of the building may be made upon the Director-General's sanction.

“Immediately after the close of the Exhibition, exhibitors shall remove their effects, and complete such removal before December 31st, 1876. Goods then remaining will be removed by the Director-General and sold for expenses, or otherwise disposed of under the direction of the Commission.

“Each person who becomes an exhibitor thereby acknowledges and undertakes to keep the rules and regulations established for the government of the Exhibition.

“Special regulations will be issued concerning the exhibition of fine arts, the organization of international juries, awards of prizes, the sale of special articles within the buildings, and on other points not touched upon in these preliminary instructions.

“An Official Catalogue will be published in four distinct versions,—viz., English, French, German and Spanish. The sale of catalogues is reserved to the Centennial Commission.

“Communications concerning the Exhibition should be addressed to ‘The Director-General, International Exhibition, 1876, Philadelphia, Penna.’

“The Centennial Commission reserves the right to explain or amend these regulations, whenever it may be deemed necessary for the interests of the Exhibition.

“A. T. GOSHORN, *Director-General*.

“JOHN L. CAMPBELL, *Secretary*.

“PHILADELPHIA, *July 4th, 1874.*”

“GENERAL REGULATIONS FOR FOREIGN EXHIBITORS.

“The Exhibition will be held at Fairmount Park, in the city of Philadelphia, and will be opened on the 10th day of May, 1876, and closed on the 10th day of November following.

“All governments have been invited to appoint Commissions, for the purpose of organizing their departments of the Exhibition. The Director-General should be notified of the appointment of such Foreign Commissions before January 1st, 1875.

“Full diagrams of the buildings and grounds will be furnished to the Foreign Commissions on or before February 1st, 1875, indicating the localities to be occupied by each nation, subject, however, to revision and readjustment.

“Applications for space and negotiations relative thereto must be conducted with the Commission of the country where the article is produced.

“Foreign Commissions are requested to notify the Director-General, not later than May 1st, 1875, whether they desire any increase or diminution of the space offered them, and the amount.

“Before December 1st, 1875, the Foreign Commissions must furnish the Director-General with approximate plans showing the manner of allotting the space assigned to them, and also with lists of their exhibitors, and other information necessary for the preparation of the Official Catalogue.

“Products brought into the United States, at the ports of New York, Boston, Portland, Me., Burlington, Vt., Suspen-

sion Bridge, N. Y., Detroit, Port Huron, Mich., Chicago, Philadelphia, Baltimore, Norfolk, New Orleans and San Francisco, intended for display at the International Exhibition, will be allowed to go forward to the Exhibition buildings, under proper supervision of customs officers, without examination at such ports of original entry, and at the close of the Exhibition will be allowed to go forward to the port from which they are to be exported. No duties will be levied upon such goods, unless entered for consumption in the United States.

“The transportation, receiving, unpacking, and arranging of the products for exhibition will be at the expense of the exhibitor.

“The installation of heavy articles requiring special foundations or adjustment should, by special arrangement, begin as soon as the progress of the work upon the buildings will permit. The general reception of articles at the Exhibition building will commence on January 1st, 1876, and no articles will be admitted after March 31st, 1876.

“Space assigned to Foreign Commissions and not occupied on the 1st of April, 1876, will revert to the Director-General for reassignment.

“If products are not intended for competition, it must be so stated by the exhibitor, and they will be excluded from the examination by the International Juries.

“An Official Catalogue will be published in four distinct versions,—viz., English, French, German and Spanish. The sale of catalogues is reserved to the Centennial Commission.

“The ten departments of the classification which will determine the relative location of articles in the Exhibition—except in such collective exhibitions as may receive special sanction—and also the arrangement of names in the catalogue, are as follows :

“I. Raw Materials—Mineral, Vegetable, and Animal.

“II. Materials and Manufactures used for Food, or in the Arts, the result of Extractive or Combining Processes.

“III. Textile and Felted Fabrics ; Apparel, Costumes, and Ornaments for the person.

- “IV. Furniture and Manufactures of general use in construction and in dwellings.
- “V. Tools, Implements, Machines, and Processes.
- “VI. Motors and Transportation.
- “VII. Apparatus and Methods for the increase and diffusion of knowledge.
- “VIII. Engineering, Public Works, Architecture, etc.
- “IX. Plastic and Graphic Arts.
- “X. Objects illustrating efforts for the improvement of the Physical, Intellectual, and Moral Condition of Man.

“Foreign Commissions may publish catalogues of their respective sections.

“Exhibitors will not be charged for space.

“A limited quantity of steam and water-power will be supplied gratuitously. The quantity of each will be settled definitively at the time of the allotment of space. Any power required by the exhibitor in excess of that allowed will be furnished by the Centennial Commission at a fixed price. Demands for such excess of power must also be settled at the time of the allotment of space.

“Exhibitors must provide at their own cost, all show-cases, shelving, counters, fittings, etc., which they may require; and all countershafts, with their pulleys, belting, etc., for the transmission of power from the main shafts in the Machinery Hall. All arrangements of articles and decorations must be in conformity with the general plan adopted by the Director-General.

“Special constructions of any kind, whether in the buildings or grounds, can only be made upon the written approval of the Director-General.

“The Centennial Commission will take precautions for the safe preservation of all objects in the Exhibition; but it will in no way be responsible for damage or loss of any kind, or for accidents by fire or otherwise, however originating.

“Favorable facilities will be arranged by which exhibitors or Foreign Commissions may insure their own goods.

“Foreign Commissions may employ watchmen of their own choice to guard their goods during the hours the Exhibition is

open to the public. Appointments of such watchmen will be subject to the approval of the Director-General.

“Foreign Commissions, or such agents as they may designate, shall be responsible for the receiving, unpacking and arrangement of objects, as well as for their removal at the close of the Exhibition; but no person shall be permitted to act as such agent until he can give to the Director-General written evidence of his having been approved by the proper commission.

“Each package must be addressed ‘To the Commission for [*name of country*] at the International Exhibition of 1876, Philadelphia, United States of America,’ and should have at least two labels affixed to different but not opposite sides of each case, and giving the following information :

“(1) The country from which it comes ; (2) name or firm of the exhibitor ; (3) residence of the exhibitor ; (4) department to which objects belong ; (5) total number of packages sent by that exhibitor ; (6) serial number of that particular package.

“Within each package should be a list of all objects.

“If no authorized person is at hand to receive goods on their arrival at the Exhibition building, they will be removed without delay, and stored at the cost and risk of whomsoever it may concern.

“Articles that are in any way dangerous or offensive, also patent medicines, nostrums, and empirical preparations whose ingredients are concealed, will not be admitted to the Exhibition.

“The removal of goods will not be permitted prior to the close of the Exhibition.

“Sketches, drawings, photographs or other reproductions of articles exhibited, will only be allowed upon the joint assent of the exhibitor and the Director-General ; but views of portions of the building may be made upon the Director-General’s sanction.

“Immediately after the close of the Exhibition, exhibitors shall remove their effects, and complete such removal before December 31st, 1876. Goods then remaining will be removed by the Director-General and sold for expenses, or other-

wise disposed of under the direction of the Centennial Commission.

"Each person who becomes an exhibitor thereby acknowledges and undertakes to keep the rules and regulations established for the government of the Exhibition.

"Special regulations will be issued concerning the Exhibition of fine arts, the organization of international juries, awards of prizes, and sale of special articles within the buildings, and on other points not touched upon in these preliminary instructions.

"Communications concerning the Exhibition should be addressed to 'The Director-General, International Exhibition, 1876, Philadelphia, Pa., U. S. A.'

"The Centennial Commission reserves the right to explain or amend these regulations, whenever it may be deemed necessary for the interests of the Exhibition.

"A. T. GOSHORN, *Director-General*.

"JOHN L. CAMPBELL, *Secretary*.

"PHILADELPHIA, *July 4th, 1874.*"

On the 3d of October, 1874, the Secretary of the Treasury issued the following order prescribing the mode of the free admission of goods for the Exhibition :

"REGULATIONS GOVERNING THE FREE IMPORTATION OF GOODS FOR THE INTERNATIONAL EXHIBITION OF 1876, AT PHILADELPHIA.

"TREASURY DEPARTMENT, }

"WASHINGTON, D. C., *October 3d, 1874.* }

"An act of Congress approved June 18th, 1874, entitled 'An act to admit free of duty articles intended for the International Exhibition of eighteen hundred and seventy-six,' provides as follows :

" 'Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That all articles which shall be imported for the sole purpose of exhibition at the International Exhibition to be held in the city of Philadelphia in the year 1876, shall be admitted without the payment of duty or of customs fees or charges, under such

regulations as the Secretary of the Treasury shall prescribe: *Provided*, That all such articles as shall be sold in the United States or withdrawn for consumption therein at any time after such importation shall be subject to the duties, if any, imposed on like articles by the revenue laws in force at the date of importation: *And provided further*, That in case any articles imported under the provisions of this act shall be withdrawn for consumption, or shall be sold without payment of duty as required by law, all the penalties prescribed by the revenue laws shall be applied and enforced against such articles and against the person who may be guilty of such withdrawal or sale.'

"In pursuance of the provisions of this act the following regulations are prescribed:

"1. No duty or customs fees or charges being required on any such importations, a new form of entry is prescribed, which will be employed in all cases at the port where such goods are received.

"2. The ports of New York, Boston, Portland, Me., Burlington, Vt., Suspension Bridge, N. Y., Detroit, Port Huron, Mich., Chicago, Philadelphia, Baltimore, Norfolk, New Orleans and San Francisco, will alone constitute ports of entry at which importations for said Exhibition will be made free of duty.

"3. All articles designed for such Exhibition must be forwarded, accompanied by an invoice or schedule of the numbers, character, and commercial value of each shipment, which statement shall be attested before a consul of the United States or a civil magistrate of the country in which they are produced or from which they are shipped to the United States. Such verified bill of contents and values will be transmitted in triplicate, one copy to the collector of customs at the port where it is desired to make entry, which will be retained for the files of his office; one copy to some duly authorized agent, either of the owners, or of the Foreign Commission of the country from which shipment was made, which agent must in all cases be recognized by the Director-General of the Exhibition, who will, by virtue of that authority, verify the goods and made entry; and one

copy to the collector at the port of Philadelphia; and all packages and enclosures containing goods destined for such Exhibition must be plainly and conspicuously marked with the words 'For the International Exhibition of 1876, at Philadelphia.'

"4. All goods arriving so marked and represented, either at the time of arrival or at any time while remaining in the custody of the collector of customs at the port of arrival on general order, will, when entered at the port of arrival, be delivered without examination to such recognized agent or agents, to be by him or them forwarded from the port of arrival by bonded line of transportation to Philadelphia, there to be delivered to the custody of the collector of that port.

"5. Entry for warehouse will be made for all such transported packages on arrival at the said port of Philadelphia, and original entry for warehouse will be made of all goods directed by first shipment to Philadelphia. Warehouse entry having been made, the packages will be held in the custody of the said collector until the Exhibition building, or some building erected by and in the custody of the officers controlling the said Exhibition, and suitable for secure custody as a warehouse under the authority of the United States, is ready to receive them.

"6. Separate and complete records of all packages so transmitted and received by the collector at Philadelphia will be made by the storekeeper at the port of Philadelphia in a book prepared for the purpose, in which will be entered, so far as known, the owner's name, the agent's name representing the articles, the country from which shipped, the date of such shipment, the name of the importing vessel, and the date of arrival, the general description and value of the goods, and the specific marks and numbers of the packages. Such record will also be kept in duplicate by a special inspector of customs who, under the direction of the Secretary of the Treasury, shall be appointed to identify, forward, and care for packages so properly marked, and intended in good faith for the Exhibition, but which may not be properly represented by an owner or agent.

"7. When the said Exhibition building, or a warehouse suitable for secure custody of articles intended for the Exhibi-

tion, duly authorized for receiving bonded goods, shall be ready to receive articles then in the custody of the collector of the port of Philadelphia, descriptive permits, in duplicate, shall be issued by the said collector to the storekeeper of the port, directing the delivery of packages as required by the owner or agent, or by the officers of the said Exhibition—one copy of which permits shall be preserved by the said storekeeper, the second copy to be delivered with the goods to a proper officer of the customs stationed at the said Exhibition building or warehouse, to be there kept as a record of goods entered for such Exhibition in addition to the duplicate required to be kept in a book of proper form as before referred to. And all packages shall be opened in presence of an officer of the customs, who shall verify the contents from and upon such descriptive list, correcting and completing it as the facts may require.

“8. In case of receipt by the collector at Philadelphia of packages imperfectly described or verified, or in regard to which information may be received questioning the good faith of the persons forwarding the same, the said collector may direct an examination, in proper form, for the purpose of determining the question, and if, on conference with the Director-General, the goods are found to have been forwarded not in good faith for said Exhibition, they will be charged with duty according to their value and classification, and held by the said collector, subject to appeal to the Secretary of the Treasury, to await proper claim and payment of duty by their owners.

“9. All charges for transportation, drayage, and freight, accruing on goods arriving for the said Exhibition, will be required to be paid by the owner or agent at the time of their delivery into the custody of the collector of customs at Philadelphia, or if on packages of small bulk or weight, not accompanied by the owner or agent, or consigned to a foreign commissioner, and not exceeding \$5 in amount, will be charged against the goods as so delivered into the custody of the collector at Philadelphia, to be paid with other charges subsequently accruing before the permit is issued for their delivery to the Exhibition building; and on all packages exceeding

fifty pounds in weight, half storage, as provided by regulation for the storage of ordinary merchandise in the public warehouse at the port of Philadelphia, will be charged against the goods received and stored therein from the time of receipt to the time of delivery to the Exhibition building. No fees for entry, permit, or other official act, and no duties will be charged upon or against such packages until after their withdrawal from such Exhibition, for sale, at its close or during its continuance.

“10. All articles received and entered at such Exhibition in the manner hereinbefore provided may, at any time consistently with the regulations controlling said Exhibition, be withdrawn for sale or delivery to other parties than the owner or agent concerned in their importation, on payment of the duties properly accruing on said goods according to the laws in force at the time of the importation thereof; and for the purpose of assessment and determination of such duties, and for proper identification of the articles, an officer of the appraiser's department of the port of Philadelphia shall be detailed to make due examination of the articles so withdrawn or sold, verifying them by the record of their introduction, and charging upon a proper form, to be prepared for such purpose, the said rate and amount of duty; and on payment of the duty so charged, but without fee or other expenses, the owner or agent shall receive a permit for their removal from the Exhibition.

“11. Articles designed to be returned to the foreign country from which the same were imported, or to be removed from the United States, will, at the close of the Exhibition, or at such time as shall be directed by the officers of such Exhibition, be verified by the customs officer in charge at the Exhibition, re-enclosed, duly marked, and forwarded, under permit of the collector at Philadelphia, to any other port for export, or may be directly exported to Philadelphia. Export entries for such use will be prepared, corresponding to the import entries under which the goods were originally received.

“12. A special inspector of customs will, under the direction of the Secretary of the Treasury, report at intervals to the collectors of the ports of Philadelphia and of New York, or of

such other ports as he may be directed to visit, for the purpose of applying the regulations herein provided.

“[Signed,]

“B. H. BRISTOW, *Secretary*.

Immediately after the passage of the act of Congress establishing the United States Centennial Commission, the work of preparing for the Exhibition was begun. It was understood from the first that the most difficult portion of this task would be the providing of the funds necessary for carrying on the work. Congress had expressly stipulated that the general government should not be responsible for any of the debts contracted on account of the Exhibition, and had given the friends of the scheme to understand that they need not expect any aid from the treasury of the United States. Whatever money was to be provided must come from private individuals, or from the various States and cities of the Union. It was necessary, therefore, in order to inspire the people of the country with confidence enough to induce them to contribute toward the enterprise, that the management of the financial part of it should be placed in the hands of proper parties, who should be vested with certain powers and brought under certain restrictions. Accordingly, the friends of the Exhibition obtained the passage of an act of Congress, which was approved by the President on the 1st of June, 1872, establishing the CENTENNIAL BOARD OF FINANCE. The following are the principal sections of this bill :

“*Whereas*, Congress did provide by an act entitled ‘An act to provide for celebrating the one hundredth anniversary of American Independence by holding an International Exhibition of Arts, Manufactures, and Products of the Soil and Mine, in the city of Philadelphia, and State of Pennsylvania, in the year eighteen hundred and seventy-six,’ approved March third, eighteen hundred and seventy-one, for the appointment of Commissioners to promote and control the exhibition of the national resources and their development, and the nation’s progress in arts which benefit mankind, and to suggest and direct appropriate ceremonies by which the people of the United States

may commemorate that memorable and decisive event, the Declaration of American Independence by the Congress of the United Colonies, assembled in the city of Philadelphia, on the fourth day of July, Anno Domini seventeen hundred and seventy-six; and, whereas, such provisions should be made for procuring the funds requisite for the purposes aforesaid, as will enable all the people of the United States, who have shared the common blessings resulting from national independence, to aid in the preparation and conduct of said International Exhibition and memorial celebration under the direction of the Commissioners of the United States: Therefore,

“Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That there is hereby created a body corporate, to be known by the name of the Centennial Board of Finance, and by that name to have an incorporate existence until the object for which it is formed shall have been accomplished; and it shall be competent to sue and be sued, plead and be impleaded, defend and be defended in all courts of law and equity in the United States; and may make and have a corporate seal, and may purchase, take, have, and hold, and may grant, sell, and at pleasure dispose of all such real and personal estate as may be required in carrying into effect the provisions of an act of Congress, entitled ‘An act to provide for celebrating the one hundredth anniversary of American Independence by holding an International Exhibition of Arts, Manufactures, and Products of the Soil and Mine, in the city of Philadelphia and State of Pennsylvania, in the year eighteen hundred and seventy-six,’ approved March third, eighteen hundred and seventy-one, and an act supplementary thereto.

“SEC. 2. That the said corporation shall have authority, and is hereby empowered to secure subscriptions of capital stock to an amount not exceeding ten million dollars, to be divided into shares of ten dollars each, and to issue to the subscribers of said stock certificates therefor under the corporate seal of said corporation, which certificates shall bear the signature of the President and Treasurer, and be transferable under such rules and

regulations as may be made for the purpose. And it shall be lawful for any municipal or other corporate body existing by or under the laws of the United States to subscribe and pay for shares of said capital stock; and all holders of said stock shall become associates in said corporation, and shall be entitled to one vote on each share.

“SEC. 8. That the Centennial Board of Finance shall have authority to issue bonds, not in excess of its capital stock, and secure the payment of the same, principal and interest, by mortgage upon its property and prospective income.

“SEC. 9. That it shall be the duty of the Secretary of the Treasury of the United States, as soon as practicable after the passage of this act, to cause to be prepared, in accordance with a design approved by the United States Centennial Commission and the Secretary of the Treasury, a suffi-



BRIDGE OVER WISSAHICKON, NEAR MOUNT AIRY.

cient number of certificates of stock to meet the requirements of this act; and any person found guilty of counterfeiting, or attempting to counterfeit, or knowingly circulating false certificates of stock herein authorized, shall be subject to the same pains and penalties as are or may be provided by law for counterfeiting United States currency; but nothing in this act shall be so construed as to create any liability of the United States, direct or indirect, for any debt or obligation incurred, nor for any claim by the Centennial Inter-

national Exhibition, or the corporation hereby created, for aid or pecuniary assistance from Congress or the treasury of the United States, in support or liquidation of any debt or obligations created by the corporation herein authorized: *And provided*, That nothing in this act shall be so construed as to override or interfere with the laws of any State; and all contracts made in any State for the purposes of the Centennial International Exhibition shall be subject to the laws thereof: *And provided further*, That no member of said Centennial Board of Finance assumes any personal liability for any debt or obligation which may be created or incurred by the corporation authorized by this act.

“SEC. 10. That as soon as practicable after the said Exhibition shall have been closed, it shall be the duty of said corporation to convert its property into cash, and, after the payment of all its liabilities, to divide its remaining assets among its stockholders, *pro rata*, in full satisfaction and discharge of its capital stock.”

Under the above act the Centennial Board of Finance was organized, and as now constituted is as follows:

CENTENNIAL BOARD OF FINANCE.

PRESIDENT—John Welsh, Philadelphia.

VICE-PRESIDENTS—William Sellers, Philadelphia; John S. Barbour, Virginia.

SECRETARY AND TREASURER—Frederick Fraley.

AUDITOR—H. S. Lansing.

DIRECTORS—Samuel L. Felton, Philadelphia; Daniel M. Fox, Philadelphia; Thomas Cochran, Philadelphia; Clement M. Biddle, Philadelphia; N. Parker Shortridge, Philadelphia; James M. Robb, Philadelphia; Edward T. Steel, Philadelphia; John Wanamaker, Philadelphia; John Price Wetherill, Philadelphia; Henry Winsor, Philadelphia; Henry Lewis, Philadelphia; Amos R. Little, Philadelphia; John Baird, Philadelphia; Thomas H. Dudley, New Jersey; A. S. Hewitt, New York; John Cummings, Massachusetts; John Gorham, Rhode Island; Charles W. Cooper, Pennsylvania; William Bigler, Pennsylvania; Robert M. Patton, Alabama; J. B. Drake, Illinois; George Bain, Missouri.

FINANCIAL AGENT—William Bigler.

In the organization of the Board of Finance a majority of its

members were chosen from Philadelphia in order that, being on the ground, they might be able to devote their whole time to the work intrusted to them.

The Board of Finance was authorized by the act of incorporation to issue certificates of stock to the amount of ten million dollars. It was estimated that apart from the subscriptions of the various States and cities, it would be necessary to sell stock to the amount of \$3,500,000. The shares were fixed by the board at ten dollars each, a sum suited to the means of all classes, and calculated to make the subscriptions to the stock of the Exhibition popular in character. The holder of each certificate is entitled to a share in the profits of the Exhibition. All the net income of the six months' display, together with the proceeds of the sale of all the available property remaining at the close of the Exhibition, will be divided proportionately among the holders of the stock.

The act of Congress directed the Secretary of the Treasury to cause certificates of the stock of the Exhibition to be engraved and printed at the treasury of the United States and delivered to the Board of Finance. These certificates were duly delivered to subscribers to the stock of the Exhibition, and each is to remain forever the property of its holder as a memorial of the great enterprise and of the liberality with which the American people carried it through to success. The certificate is in all respects a beautiful specimen of the highest branch of steel engraving. "The plate is twenty-four by twenty inches, on the best bank-note paper. The design is pyramidal, America forming the apex, with Fame and Art personified sitting at her feet; the busts of Washington and Grant on either side, typical of the commencement and end of the century. America is represented as welcoming the representatives of foreign nations, who bear symbols of their national industries and resources. Independence Hall and the National Capitol are in the background. Beneath the former stand Fulton and Fitch, with their steamboat models, and under the latter are Franklin and Morse, with electric and telegraphic instruments. On the right, facing the figure of America, is Howe offering his sewing-machine, also a

shipwright with a model of a clipper. The freedman, Continental and Federal soldier, and mechanic, form a group on the right; and the farmer, planter, miner, trapper and Indian, all presenting symbols of their avocations, the group on the left. The centre of the base is Trumbull's painting of the 'Signing of the Declaration of Independence,' on the right of which is exemplified progress—the busy manufacturing city in contrast with the neglected windmill. To the left of the base is represented civilization, combining the railroad, telegraph, steamship and reaping-machine, in contrast with the Conestoga wagon, mail rider, sailing vessel and laborer with a sickle. The legend in the body of the certificate was engraved by a new and ingenious process, the invention of G. W. Casilear, Superintendent of the Engraving Department of the Treasury, and is most creditable, as is also the printing—the department being determined to make the work worthy of the nation and the grand commemorative occasion. The designs and arrangement are due to Messrs. Ferris and Darley, American artists."

The efforts of the Board of Finance to dispose of the stock of the Exhibition succeeded but slowly at first. The stock had to contend in the market with that of a hundred other schemes which promised a larger rate of interest and a quicker return. Still, it did not go begging. The adjacent State of New Jersey gave new life to the effort by a subscription of \$100,000, and was followed by subscriptions from New Hampshire, Connecticut and Delaware for \$10,000 each. The city of Wilmington, Delaware, subscribed for \$5000, and in a short time a subscription of about \$250,000 was made up in the city of New York.

This did not meet the demand, however, and as it was found impossible to carry on the work of raising funds through the agency of the banks, as was at first proposed, it was decided by the Board of Finance to create a *Bureau of Revenue*, which should devote all its energies to the task of raising funds, thus leaving the Board of Finance free to attend to its other duties. The *Bureau of Revenue* was, therefore, duly organized on the 1st of July, 1874, and was constituted as follows:

Clement M. Biddle, <i>Chairman</i>	Philadelphia.
William Bigler, <i>Financial Agent</i>	Pennsylvania.
Edmund T. Steel.....	Philadelphia.
Amos R. Little.....	"
John Wanamaker.....	"
Daniel M. Fox.....	"
James M. Robb.....	"
John Baird.....	"
Thos. H. Dudley.....	New Jersey.
John Cummings	Massachusetts.
William L. Strong.....	New York.
George Bain	Missouri.

C. B. Norton, *Secretary*.

The work which was thus intrusted to the Bureau of Revenue was important and laborious in the highest degree. The panic of 1873 had almost paralyzed the finances of the country, and the people had become timid and hesitating in supporting schemes of any kind which required an outlay of money. It became necessary for the Bureau of Revenue to win the confidence of the people in the scheme they were asked to assist, as the basis of all its operations. It had by this time become evident that the various States of the Union could not be depended upon to furnish their respective proportions of the funds, and that the Exhibition must depend for its success mainly upon private subscriptions.

The Bureau of Revenue at once set to work. Its efforts to popularize the stock of the Exhibition were systematic and well directed. How well they have succeeded is shown by the magnificent sum subscribed by the people of the Union in response to their appeals—a sum amounting to nearly three million dollars. To each member of the bureau is due his share of praise for this splendid success, but the credit is chiefly due to the able and efficient Secretary, General Charles B. Norton, upon whom has devolved the principal portion of the labor of the board, and whose wide experience and fertile genius have suggested the happiest and most successful methods by which this success has been won.

As a means of facilitating the work in hand, and of securing as nearly as possible the exact quota originally assigned to each

State by the Board of Finance, auxiliary boards were organized by the bureau in States, counties and districts. These were composed of volunteers, whose patriotic interest in the Exhibition induced them to give their services gratuitously to the cause. One of their duties was to select responsible and energetic men in their respective communities for the sale of stock and medals. The plan was eminently successful.

As a further means of obtaining a revenue, and at the same time of providing a permanent, appropriate, inexpensive and yet handsome memorial of the Centennial year, the Board of

Finance obtained the passage of an act of Congress, approved June 16th, 1874, authorizing the board to have coined at the United States Mint at Philadelphia a series of *Memorial Medals* in bronze and gilt, and silver. These medals were furnished by the mint at cost, and were sold by the Bureau of Revenue and its agents at a fair profit. Persons



CENTENNIAL MEDAL—REVERSE.

whose means did not permit them to purchase the ten dollar certificates of stock were thus enabled by the purchase of one or more of these medals to contribute towards the success of the great enterprise, and at the same time to possess a beautiful and enduring memorial of the Centennial year and Exhibition.

These "Memorial Medals" are of four descriptions, to bring them within the taste and means of all, viz.: In large bronze, at \$2; large gilt, at \$5; small silver, at \$3; and small gilt, at \$1. In addition, the four medals can be had neatly arranged in one case, price \$11. The fac-simile annexed is of the size of the first and second of these, the small silver and gilt being the size

of the American dollar, with the same obverse design, but bearing on the centre of the reverse the inscription: "In Commemoration of the Hundredth Anniversary of American Independence, 1876," surrounded by the words: "By authority of the Congress of the United States."

The design of the "obverse" on all of the medals represents the Genius of American Independence rising from a recumbent position, grasping with her right hand the sword which is to enforce her demands, and raising her left in appealing pride to the galaxy of thirteen stars, which, indicating the original colonies and States, are blazing in the firmament. Beneath is the date, 1776. The "reverse" on the large medals displays the Genius of Liberty, with the now ornamental sword buckled to her girdle, the shield of the stars and stripes leaning at rest, while with either hand she extends a welcome and a chaplet to the Arts and Sciences assembled with evi-

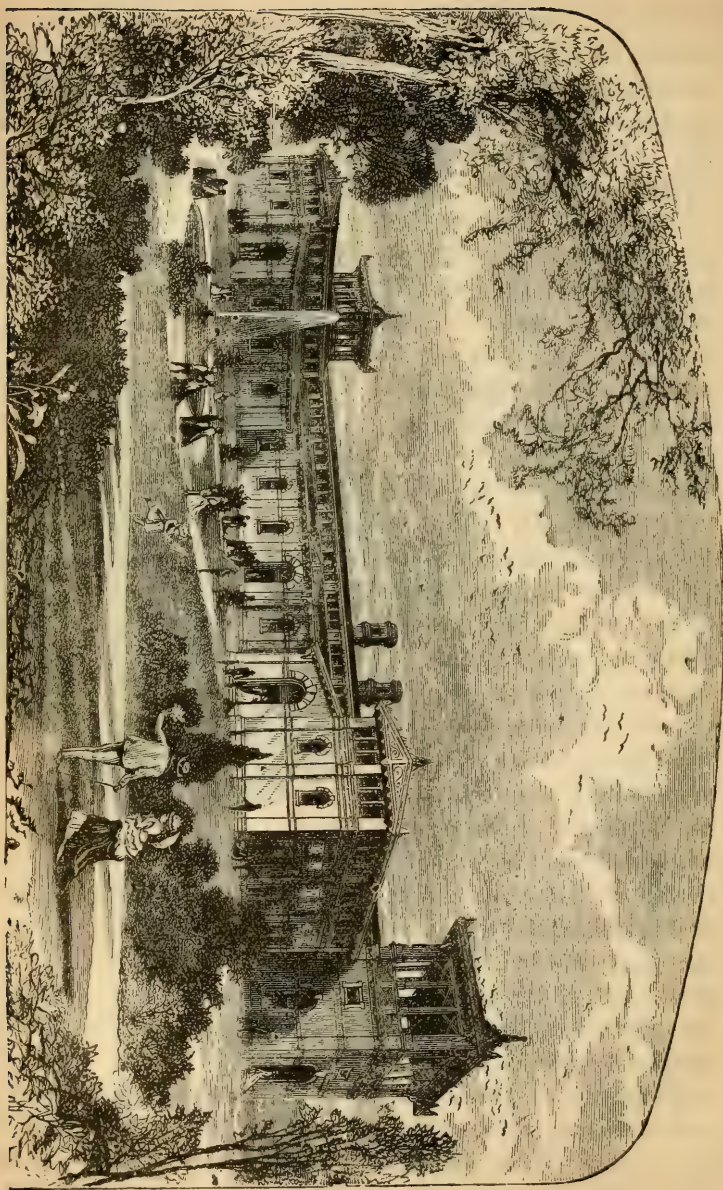


CENTENNIAL MEDAL—OBVERSE.

dences of their skill and craft to do honor to the date 1876, which is inscribed upon the platform. The history of our great nation is depicted in these two designs; and as a work of art, a memento of the Centennial, or as a means of contributing to its celebration, these Memorial Medals should be objects of universal appreciation.

The State of Pennsylvania at an early day came forward to the assistance of the Exhibition with an appropriation of \$1,000,000. This was followed by appropriations by the city of Philadelphia amounting to \$1,500,000. Besides these appropriations, the city of Philadelphia may be regarded as a

CARNIVORA BUILDING—ZOOLOGICAL GARDENS.



contributor to the success of the Exhibition in the erection of the magnificent bridges over the Schuylkill at Callowhill street and Girard avenue, at a cost of over \$2,500,000; in the various improvements it has made in Fairmount Park on account of the Exhibition; and in its splendid donation of the Exhibition grounds. Apart from all this, however, the direct appropriations of the State and city, together with the subscriptions of private individuals to the stock of the enterprise, swell the contribution of Pennsylvania to the Exhibition to more than four million dollars — fully one-half of the entire cost of the preparation and administration of the Exhibition.

In spite of the clause of the act of Congress incorporating the Exhibition, which stipulated that the United States should not be responsible for any of the expenses of the enterprise, the Centennial Commission, in the spring of 1874, made an appeal to Congress for an appropriation in behalf of the scheme. A bill was introduced in the House of Representatives appropriating the sum of *three million dollars* to the Exhibition. It was argued by the friends of the scheme that as the United States had by its invitations to foreign powers to participate in the Exhibition given to it an international character, and had become responsible for its



MONSTER PINES, WEST PARK.

success, Congress was morally bound to aid the enterprise by a liberal appropriation, if for no other reason, for the simple purpose of sustaining the credit of the country in the eyes of the world. It was also argued that as the single State of Pennsylvania had voluntarily assumed fully half of the cost of the Exhibition, Congress might reasonably be expected to contribute the sum asked for on account of the nation at large. The bill was put upon its final passage on the 6th of May, 1874, and was defeated by a vote of 139 against it to 90 in its favor. The defeat of the bill was owing chiefly to the Western States, which cast their votes almost solidly against it. The vote of the various sections stood as follows: The *Eastern States*, for the bill, 43 votes; against it, 27 votes; the *Southern States*, for the bill, 36 votes; against it, 22 votes; the *Western States*, for the bill, 11 votes; against it, 90 votes. The Western vote against the bill thus equalled the combined vote in its favor.

The defeat of the appropriation bill by Congress, instead of disheartening the friends of the Exhibition, merely stimulated them to fresh exertions. They were resolved that the scheme should not fail in their hands. Thanks to the liberal action of the State of Pennsylvania and the city of Philadelphia, and the cordial manner in which the people of the country responded to the appeals of the Board of Finance and the Bureau of Revenue for aid, the work upon the great Exhibition buildings was promptly begun, and steadily carried forward. On the 1st of December, 1875, the Board of Finance was able to make the following encouraging showing of its work:

SUMMARY OF RECEIPTS.

Total stock subscriptions, reliable.....\$2,357,750

In which are included:

New Jersey.....	\$100,000
Delaware.....	10,000
Connecticut.....	10,000
New Hampshire.....	10,000
Wilmington, Del.....	5,000

\$135,000

Gifts, concessions and interest.....	\$230,000
Further receipts from concessions.....	100,000
Appropriation by Pennsylvania.....	1,000,000
Appropriation by Philadelphia.....	1,500,000
Deficiency	<u>1,537,100</u>
Total cost of preparation to May 10th, 1876.....	\$6,724,850

EXPENDITURES.

The expenditures have been as follows:

Main Building, or Industrial Hall.....	\$1,113,793	22
Memorial Hall.....	834,218	80
Machinery Hall.....	577,637	25
Horticultural Hall.....	231,466	60
Agricultural Hall.....	26,641	14
Administration offices.....	25,787	48
Boundary fence.....	8,638	55
Water supply.....	35,331	87
Lansdowne and Belmont bridges.....	20,821	00
Judges' Hall.....	7,047	50
Grading and drainage.....	163,801	29
Railroads.....	11,166	16
Women's Pavilion.....	5,750	00
Engineers and architects.....	53,780	56
Insurance and police.....	1,258	55
Fire Department.....	2,348	13
Ceremonials on Fourth of July, 1873 and 1875....	6,003	56
Advertising and printing.....	31,043	17
Expenses of the Centennial Board of Finance....	91,456	07
Expenses of the United States Centennial Com- mission.....	199,027	70
Medals.....	9,227	56
Available means on hand.....	367,926	03
	<u>\$3,824,172</u>	<u>19</u>

Which were provided from the following sources:

Payment on subscriptions to stock.....	\$1,852,649	30
Gifts.....	58,015	91
Concessions for privileges.....	146,050	00
Interest on deposits.....	24,374	71
State of Pennsylvania towards Memorial Hall....	456,890	73
City of Philadelphia towards Memorial Hall....	302,812	24
City of Philadelphia towards Machinery Hall....	490,795	37
City of Philadelphia towards Horticultural Hall..	191,082	29
Percentage retained to secure the fulfilment of contracts.....	301,431	64
	<u>\$3,824,172</u>	<u>19</u>

ESTIMATED FUTURE EXPENDITURES.

Estimate of the sum required for the completion of the grounds and buildings up to the 10th of May, 1876, when the International Exhibition will be opened. The Memorial, Machinery and Horticultural Halls being provided for by the State of Pennsylvania and city of Philadelphia, are not included :

For the Main Industrial Hall.....	\$600,000
Agricultural Hall.....	275,000
Administration offices.....	20,000
Judges' Hall.....	25,000
Lansdowne and Belmont bridges.....	60,000
Women's Pavilion.....	25,000
Four additional buildings to meet enlarged demands.....	190,000
Grading, draining, metaling roads and walks, preparations for gardens, fountains, and other ornaments, including gas and additional water supply.....	400,000
Boiler-house creation and distribution of power, shafting, etc.....	110,000
Expenses of the United States Centennial Commission, and those of all its bureaus up to May 10th.	400,000
Expenses of the Board of Finance.....	40,000
Retained percentages to be paid on completion of contracts, not including those to be paid by the State of Pennsylvania and city of Philadelphia.	160,000
Contingencies.....	200,000
Total requirements up to May 10th, 1876....	<u>\$2,505,000</u>

RESOURCES.

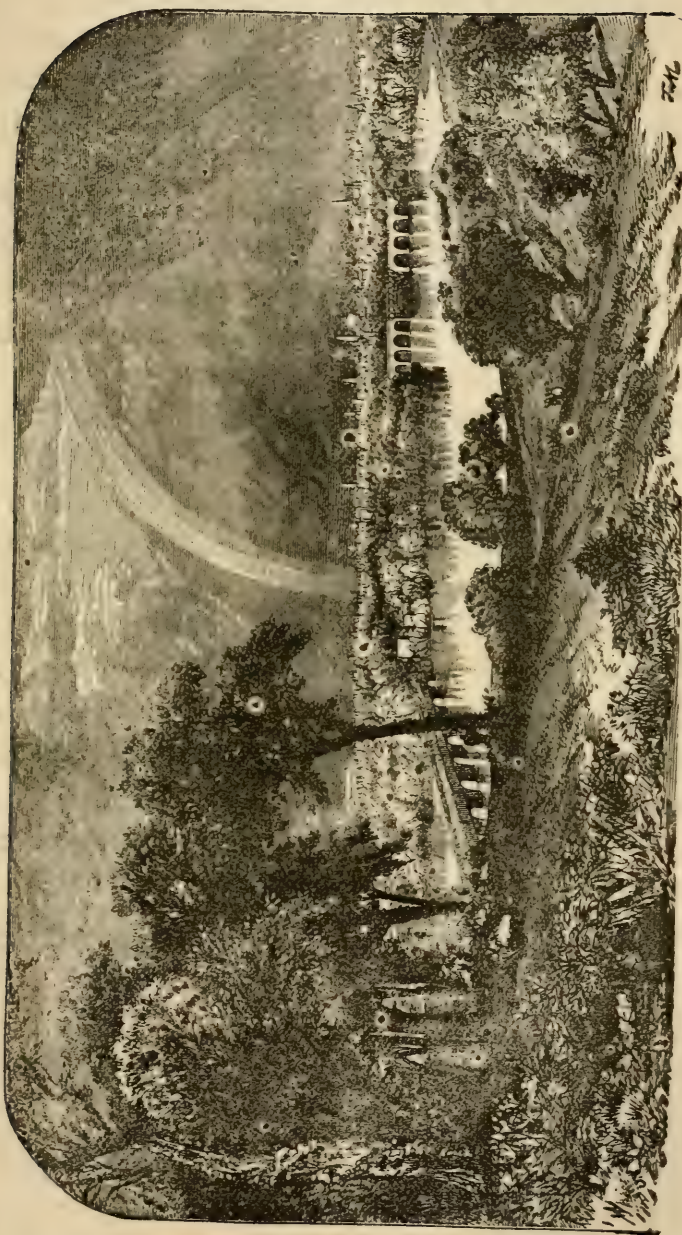
Available means on hand.....	\$367,900
Subscriptions to stock yet to be paid.....	500,000
Probable receipts from concessions.....	100,000
	<u>967,900</u>
Deficiency	<u>\$1,537,100</u>

This statement is submitted with confidence that it is as close an approximate as can be made.

JOHN WELSH,

President Centennial Board of Finance.

PHILADELPHIA, December 1st, 1875.



VIEW FROM BELMONT, WEST PARK.

In the meantime the sales of the stock and medals was carried on steadily, and it became at length apparent that the Exhibition would be financially a success. The work of preparation was paid for by the Board of Finance as it progressed, and no heavy and embarrassing debt was allowed to accumulate. It was the aim of the managers of the scheme from the first to open the doors of the Exhibition *free from debt*, and this purpose has been steadily adhered to.

It was found that the Exhibition could not be opened on the 19th of April, 1876, the day originally appointed, and the opening day was changed to the 10th of May. A corresponding change of the date of closing the Exhibition was also made from October 19th to November 10th, 1876.

The success of the Exhibition being secured, the Congress of the United States appropriated the sum of \$505,000 to enable the general government to erect a building of its own on the Exhibition grounds, and to exhibit in it the articles necessary for the proper illustration of "the functions and administrative faculties of the government in time of peace and its resources as a war power."

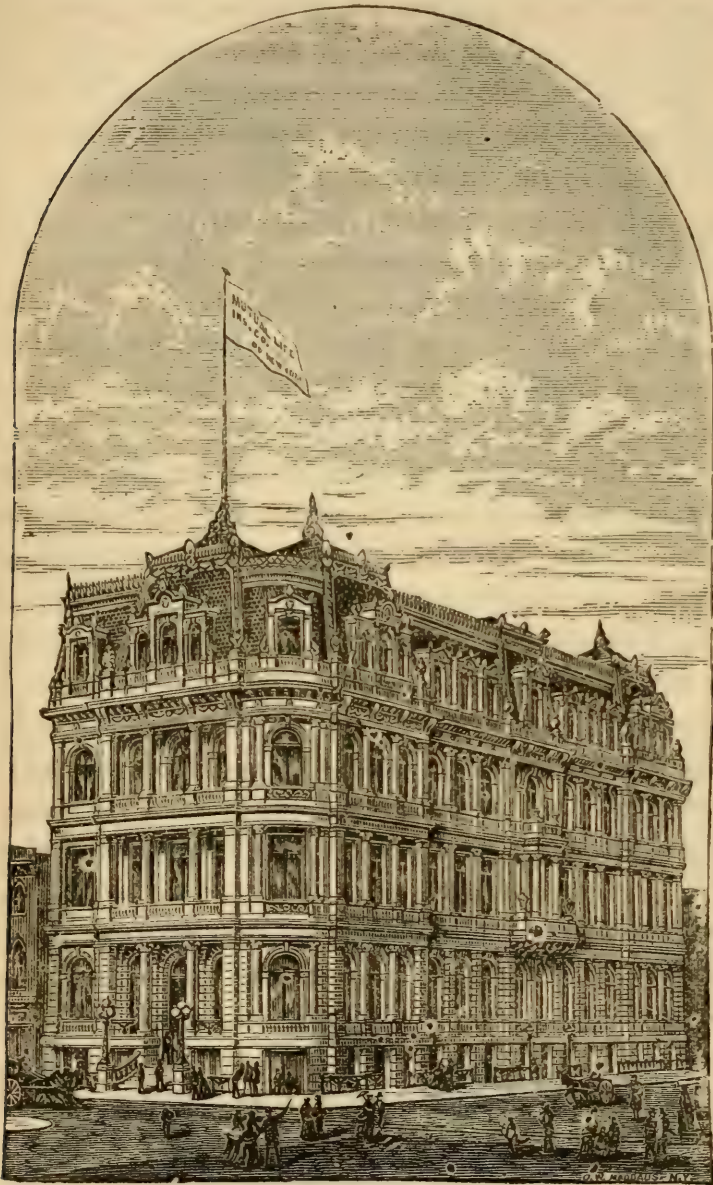
Many of the States also made appropriations for the erection of State buildings on the Exhibition grounds, and for defraying the expenses of their State Boards of Centennial Managers. These appropriations amount in the aggregate to over \$400,000. The principal were as follows:

Pennsylvania.....	\$50,000
Massachusetts.....	50,000
New York.....	25,000
Ohio.....	13,000
Nevada.....	20,000 (gold)
Illinois.....	10,000
Delaware.....	10,000
Indiana.....	10,000
Michigan.....	7,500
West Virginia.....	20,000
New Jersey.....	10,000
Arkansas.....	5,000
Kansas.....	5,000
Maryland.....	15,000
Colorado.....	4,000
Arizona.....	5,000
Montana.....	5,000

The foreign powers to whom the invitations of the Government to participate in the Exhibition were addressed, responded cordially and favorably, as we have stated. Their appropriations for the purpose of defraying the expenses of their share of the display were largely in excess of the most sanguine expectations of the friends of the enterprise. The appropriation of Great Britain (including Australia and Canada) was \$250,000 in gold; that of France (including Algeria) \$120,000; Germany, \$171,000; Austria, \$75,000; Italy, \$76,000, of which \$38,000 is from the government, and \$38,000 from the Chamber of Commerce; Spain, \$150,000; Japan, \$600,000; Sweden, \$125,000; Norway, \$44,000; Ecuador, \$10,000; and the Argentine Confederation, \$60,000. Egypt, China, Brazil, Chili, Venezuela, Russia, and other nations, have made appropriations for the expenses of their exhibitors, the exact amount of which is unknown. In all about forty governments have contributed to the expenses of the Exhibition. Their total outlay will exceed two million dollars in American money. This sum, it should be remembered, is distinct from the eight millions and a half, estimated as the proper cost of the Exhibition. Each government taking part in the Exhibition is represented by a board of commissioners appointed by it, and consisting of a number of its most distinguished citizens. They are charged with the management and display of the exhibits of their respective countries.

The success of the Exhibition being now assured, the Centennial Commission resolved to make a final appeal to Congress for aid. Soon after the opening of the session of 1875-76, a bill was introduced appropriating one million five hundred thousand dollars in aid of the Exhibition. There was a general demand from the press and people of the country that the bill should pass. The Exhibition had been carried so nearly to success by private and State subscriptions, that it was felt that the honor of the nation required that the general government should make up the sum which was still needed to place the Exhibition on an assured basis of success. After considerable discussion, the bill passed both Houses of Congress, and was approved by the President on the 16th of February, 1876.

The bill required the sum of one million five hundred thousand dollars to be paid by the Treasurer of the United States to the President and Treasurer of the Centennial Board of Finance



BUILDING OF THE NEW YORK MUTUAL LIFE INSURANCE COMPANY.

as follows : one-third immediately after the approval of the act by the President, and the remainder in four equal monthly payments. Before any portion of the appropriation could be paid

out of the Federal Treasury, the President and Treasurer of the Board of Finance were required to give security for the proper use of the money paid them in a bond of five hundred thousand dollars. The bond was given on the 3d of March, 1876, and the sureties affixed to it consisted of the names of one hundred prominent citizens of Philadelphia, whose aggregate wealth amounted to over \$60,000,000. The act of Congress required that the general government should be reimbursed out of the first profits of the Exhibition, thus placing it in the position of a preferred creditor, an act worthy of the Forty-fourth Congress.

The million and a half dollars appropriated by Congress placed the Centennial authorities in possession of the full sum needed by them to carry out their grand idea of opening the Exhibition free from debt. This amount was sufficient, together with the sum already obtained from other sources, to pay the cost of preparing the grounds, erecting the buildings, and making all the necessary preparations for the opening of the Exhibition. After the opening of the doors to the public, the "running expenses" were to be defrayed from the daily receipts.

The third annual report of the Board of Finance, dated April 19th, 1876, gave the following gratifying statement:

"So many agencies are in action, drawing the various parts of our preparatory work to a close, that it is impossible to speak other than approximately of the outlay. We see no reason to vary the estimate heretofore made, which was eight million five hundred thousand dollars, from the beginning to the final winding up. It must be borne in mind that the expenditure incident to an Exhibition on so large a scale can, in advance, only be given conjecturally.

"The whole outlay will be provided from the following sources:

State of Pennsylvania	\$1,000,000
City of Philadelphia	1,500,000
Concessions, gifts, and interest	500,000
Stock subscriptions	2,500,000
Appropriation by the United States	1,500,000
	<hr/>
	\$7,000,000

"As this shows a deficiency of one million five hundred thousand dollars, that amount must be supplied from admission fees.

"Assuming that our present assured means are equal to the payment of everything up to the opening, and that for the expenses of the Exhibition until the final winding up of its affairs there will be required one million five hundred thousand dollars from the receipts for admission fees, then whatever sum beyond that shall be realized from admissions, together with the value of the materials after its close, will be applicable to the repayment of the capital stock and the United States appropriation; the interests of the State of Pennsylvania and the City of Philadelphia being represented by their respective buildings, the Machinery, Memorial, and Horticultural Halls."

The item given as concessions in the above report comprises the sales by the Board of Finance of the privilege of selling various articles upon the grounds of the Exhibition. The total sum received for these privileges was \$450,000, and was made up as follows:

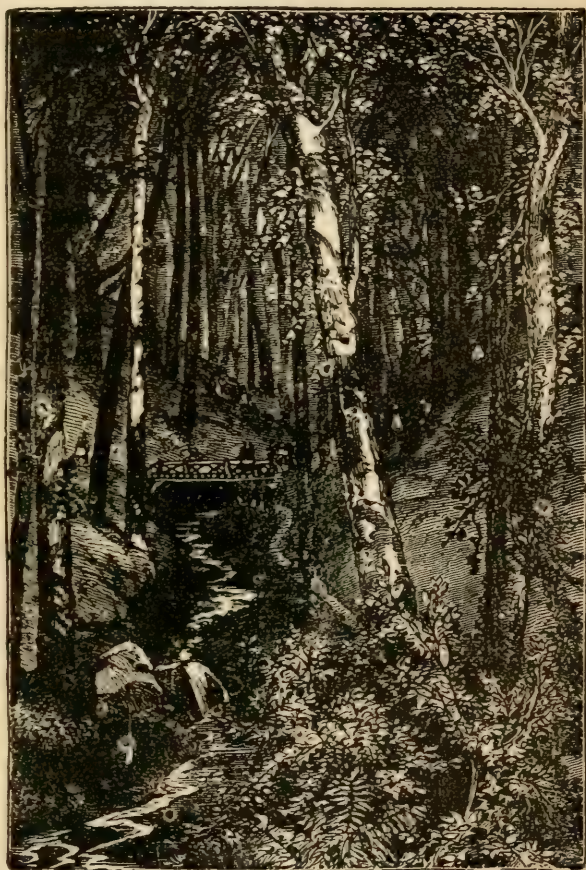
The Centennial Catalogue Company, exclusive right of printing and selling the Official Catalogue.....	\$100,000
Narrow Gauge Railway.....	20,000
French Restaurant.....	6,000
German Restaurant.....	6,000
Royalty on beer, \$3 per barrel, to be collected at the gates; estimated at.....	50,000
Exclusive right to sell soda water.....	52,000
" " " cigars and tobacco.....	18,000
" " " pop corn.....	7,000
Glass factory for supplying exhibitors.....	3,000
Telegraph and messenger service.....	35,000
Department of Public Comfort.....	16,150
Other privileges.....	136,850
	<hr/> \$450,000

The great work was at length completed, and the Centennial Exhibition was an accomplished fact. It had been throughout a series of triumphs for those engaged in it. The singleness of purpose, the systematic energy, and the rapidity with which its projectors carried it through to success have no parallel even

in the history of our own enterprising country. It is fitting that the enterprise destined to commemorate the great achievements of the American people in the arts of peace should be in itself one of the most remarkable of those achievements.

The work on the great buildings was pushed forward steadily from the time of its commencement. It was watched with the deepest interest by thousands who daily visited the grounds, and even to those who beheld its daily progress it seemed almost incredible that so much should have been done in so short a time. Machinery Hall was the first completed, and this was followed by the Main Building, the Horticultural, Agricultural and Memorial Halls.

All things being in readiness the reception of articles for the Exhibition was begun on the 5th of January, 1876. This work



RAVINE IN WESTERN PARK, SWEETBRIAR VALE.

was greatly facilitated by the co-operation of the Pennsylvania Railroad Company. A line of track was laid from the main line of that road into the Exhibition grounds, and was carried into each of the principal buildings. By this means the cars loaded with the materials for the construction of the buildings were enabled to discharge their contents on the exact spot, and when the structures were completed the articles intended for

exhibition were transported to the proper buildings on the cars and unloaded within a few yards of the location assigned to them. Goods arriving from abroad were transferred from the steamer in which they were originally shipped to the cars alongside the vessel, and transported direct to the Exhibition buildings.

The work of installation was pressed forward with vigor, and it was hoped that it would be ended by the time appointed for the opening of the Exhibition. So great and so numerous were the delays on the part of the exhibitors that the Exhibition, like its predecessor at Vienna, was opened before this work was completed. The opening ceremonies were held on the 10th of May, 1876, and will be noticed at length in another chapter.

The Exhibition being competitive in character, great care was given by the Centennial Commission to the preparation of a system of awards. At a meeting of the executive committee held on the 13th of October, 1875, a report was made with reference to this matter and a system of awards finally decided upon. We quote the following extract from the report:

"Awards have generally been made by an international jury of six hundred members. The apportionment of jurors to countries was tried on various bases, but was usually made on the basis of relative space occupied by products of each country respectively in the Exhibition. The great jury was divided into numerous small juries, who examined the products and prepared lists of names of persons whom they proposed for awards, and the proposals thus made were confirmed or rejected by higher juries. This system brought together, unavoidably, many individuals unqualified for the work. The basis of representation was apparently fair, but its results were delusive. The countries nearest the Exhibition occupied the largest space. Numerous remote countries filled smaller spaces. The number of jurors allotted to the latter body left them in many instances without jurors on many classes, and thus in voting on awards they had no voice, and the awards were in effect decreed by the few contiguous countries. Written reports were not usually made by juries, and if made, were not printed, consequently no

person outside the jury knew on what ground awards were made. Medals, when distributed, were silent verdicts, and awards thus made conveyed little useful information. Awards were based upon anonymous reports or reports not published, and final decisions were recorded in vague and mystic language not satisfactory to producers or public.

“The method of awards adopted by the Centennial Commission differs from this system. It dispenses with the international jury, and substitutes a body of two hundred judges, one-half foreign, chosen individually for high qualifications. It dispenses also with the system of awards by graduated medals, and requires of the judges written reports on the inherent and comparative merits of each product thought worthy of award, setting forth its properties and qualities, and presenting the considerations forming the ground of the award. Each report has the signature of its author. The professional judgment and moral responsibility of the judges being thus involved, the integrity of the reports is assured. The success of this method absolutely depends upon the judicious selection of judges, and to this point I desire to call particular attention.”

The following is the

SYSTEM OF AWARDS:

“1. Awards shall be based upon written reports attested by the signatures of their authors.

“2. Two hundred judges shall be appointed to make such reports, one-half of whom shall be foreigners and one-half citizens of the United States. They will be selected for their known qualifications and character, and will be experts in departments to which they will be respectively assigned. The foreign members of this body will be appointed by the commission of each country and in conformity with the distribution and allotment to each, which will be hereafter announced. The judges from the United States will be appointed by the Centennial Commission.

“3. The sum of one thousand dollars will be paid to each commissioned judge for personal expenses.

"4. Reports and awards shall be based upon merit. The elements of merit shall be held to include considerations relating to originality, invention, discovery, utility, quality, skill, workmanship, fitness for the purposes intended, adaptation to public wants, economy, and cost.

"5. Each report will be delivered to the Centennial Commission as soon as completed, for final award and publication.

"6. Awards will be finally decreed by the United States Centennial Commission, in compliance with the act of Congress, and will consist of a diploma with a uniform bronze medal and a special report of the judges on the subject of the award.

"7. Each exhibitor will have the right to reproduce and publish the report awarded to him, but the United States Centennial Commission reserves the right to publish and dispose of all reports in the manner it thinks best for public information, and also to embody and distribute the reports as records of the Exhibition.

"A. T. GOSHORN, *Director-General*.

"JOHN L. CAMPBELL, *Secretary*."

The following is the *Exhibition Calendar* determined upon by the Executive Committee :

Reception of Articles commences January 5th.

Reception of Articles ends April 19th.

Unoccupied space forfeited April 26th.

Main Exhibition opens May 10th.

Grand Ceremonies on Exhibition Grounds, July 4th.

Trials of Harvesting Machines, June and July.

Trials of Steam-Plows and Tillage Implements, September and October.

Exhibit of Horses, Mules, and Asses, September 1st to September 15th.

Exhibit of Horned Cattle, September 20th to October 5th.

Exhibit of Sheep, Swine, Goats and Dogs, October 10th to October 25th.

Exhibit of Poultry, October 28th to November 10th.

Main Exhibition closes November 10th.

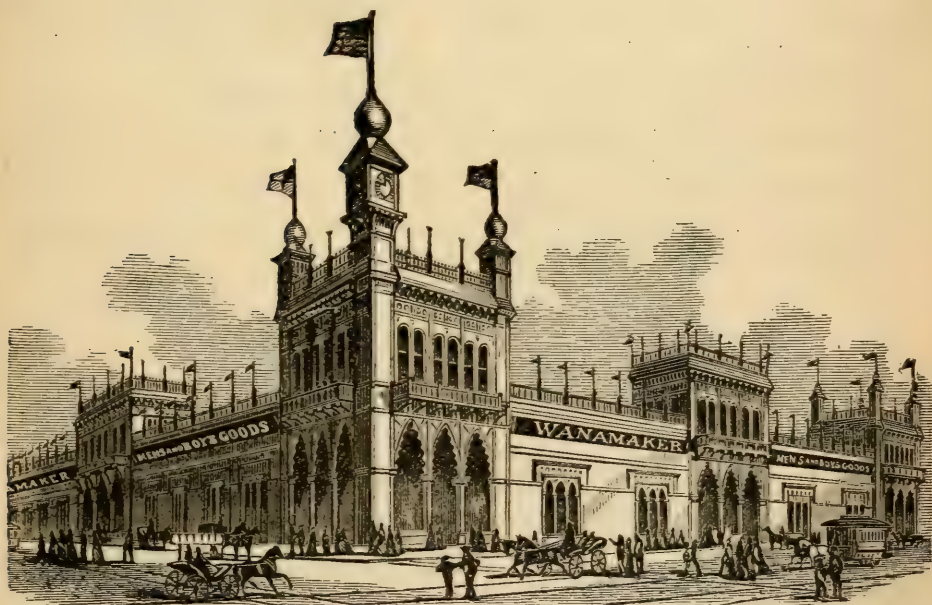
Exhibits must be removed by December 31st.

There will also be a number of celebrations during the year, connected with and growing out of the Exhibition. The most important are as follows :

Knights Templar (Masons), Annual Conclave, May 30th.

Knights Templar (Masons), Grand Parade, June 1st.

Order of Good Templars, Special Gathering, June 13th.
International Regatta (New York Harbor), June 22d.
Yacht Regatta, Delaware River, in June.
Sons of Temperance, Special Gathering, June.
International Series of Cricket Matches, June and September.
Congress of Authors in Independence Hall, July 2d.
Parade of Irish Societies (Dedication of Fountain), July 4th.
Parade of Military Organizations, July 4th.
United American Mechanics, Parade, July 8th.
Knights of Pythias, Parade, August 22d.
International Rowing Regatta, August 20th to September 15th.
International Rifle Matches, in September.
International Medical Congress, September 4th.
Independent Order of Odd-Fellows, Parade, September 20th.



JOHN WANAMAKER'S NEW CLOTHING HOUSE—MARKET ST.

CHAPTER VI.

THE MANAGEMENT OF THE EXHIBITION.

A List of the Officers of the Centennial Exhibition, and the Commissioners from Foreign Countries.

OFFICERS OF THE UNITED STATES CENTENNIAL COMMISSION.

PRESIDENT—Joseph R. Hawley, Colonnade Hotel, city.

VICE-PRESIDENTS:—Orestes Cleveland, Jersey City, N. J.; John D. Creigh, San Francisco, Cal.; Robert Lowry, Davenport, Iowa; Thomas H. Coldwell, Shelbyville, Tennessee; John McNeil, St. Louis, Mo.; William Gurney, Charleston, S. C.

DIRECTOR-GENERAL—Alfred T. Goshorn, Continental Hotel, city.

SECRETARY—John L. Campbell, 318 South Broad street, city.

ASSISTANT SECRETARIES—Myer Asch, Dorsey Gardener.

COUNSELLOR AND SOLICITOR—John L. Shoemaker, Esq., 611 Vine st., city.

OFFICE OF THE COMMISSION—No. 903 Walnut street.

BUREAUS OF ADMINISTRATION.

Chiefs of Bureaus.

FOREIGN—Direction of the foreign representation, A. T. Goshorn, Myer Asch.

INSTALLATION—Classification of application for space, allotment for space in Main Building, supervision of special structures, Henry Pettit.

TRANSPORTATION—Foreign transportation for goods and visitors, transportation for goods and visitors in the United States, local transportation, warehousing and customs regulations, Dolphus Torrey.

MACHINERY—Superintendence of the Machinery Department and building, including allotment of space to exhibitors, John S. Albert.

AGRICULTURE—Superintendence of the Agricultural Department, building, and grounds, including allotment of space to exhibitors, Burnet Landreth.

HORTICULTURE—Superintendence of Horticultural Department, conservatory, and grounds, including allotment of space to exhibitors, Charles H. Miller.

FINE ARTS—Superintendence of the Fine Art Department and building, including allotment of space to exhibitors, John Sartain.

EXECUTIVE COMMITTEE.

Daniel J. Morrell (Johnstown), Pennsylvania, *Chairman*; Alfred T. Goshorn (Continental Hotel), Ohio; N. M. Beckwith (New York city), New York; Alexander R. Boteler (Shepherdstown), West Virginia; Richard C. McCormick (Washington, D. C.), Arizona; John Lynch (New Orleans), Louisiana; Charles P. Kimball (Brewster & Co.), New York city; Samuel F. Phillips (Washington, D. C.), North Carolina; George B. Loring (Salem), Massachusetts; Frederick L. Matthews (Carlinville), Illinois; William Phipps Blake (Philadelphia), Connecticut; James E. Dexter (Washington), Dist. of Columbia; J. T. Bernard (Tallahassee), Florida.

Myer Asch (Philadelphia), *Secretary*.

CENTENNIAL COMMISSION—CENTENNIAL BOARD OF FINANCE.

PRESIDENT—John Welsh, Philadelphia.

VICE-PRESIDENTS—William Sellers, Philadelphia; John S. Barbour, Virginia.

DIRECTORS—Samuel L. Felton, Philadelphia; Daniel M. Fox, Philadelphia; Thomas Cochran, Philadelphia; Clement M. Biddle, Philadelphia; N. Parker Shortridge, Philadelphia; James M. Robb, Philadelphia; Edward T. Steel, Philadelphia; John Wanamaker, Philadelphia; John Price Wetherill, Philadelphia; Henry Winsor, Philadelphia; Henry Lewis, Philadelphia; Amos R. Little, Philadelphia; John Baird, Philadelphia; Thomas H. Dudley, New Jersey; A. S. Hewitt, New York; John Cummings, Massachusetts; John Gorham, Rhode Island; Charles W. Cooper, Pennsylvania; William Bigler, Pennsylvania; Robert M. Patton, Alabama; J. B. Drake, Illinois; George Bain, Missouri.

SECRETARY AND TREASURER—Frederick Fraley, Philadelphia.

FINANCIAL AGENT—Hon. William Bigler.

CHIEF BUREAU OF REVENUE—General C. B. Norton.

AUDITOR—H. S. Lansing.

ENGINEERS AND ARCHITECTS—Henry Pettit, Joseph M. Wilson, H. J. Schwarzmann.

OFFICERS OF THE WOMEN'S CENTENNIAL EXECUTIVE COMMITTEE.

Mrs. E. D. Gillespie, President; Mrs. John Sanders, Vice-President; Mrs. Frank M. Etting, Secretary; Mrs. S. A. Irwin, Treasurer.

UNITED STATES GOVERNMENT BOARD.

WAR DEPARTMENT, ORDNANCE BUREAU—Col. S. C. Lyford, Chairman.

TREASURY DEPARTMENT—Hon. R. W. Taylor, First Controller of the Treasury.



SCENE NEAR TYRONE, ON THE PENNSYLVANIA RAILROAD.

NAVY DEPARTMENT—Admiral Thornton A. Jenkins.

INTERIOR DEPARTMENT—Hon. John Eaton, Commissioner of Education.

POST-OFFICE DEPARTMENT—Dr. Charles F. McDonald, Chief Money-Order Department.

AGRICULTURAL DEPARTMENT—William Saunders, Superintendent of Propagating Department.

SMITHSONIAN INSTITUTION.

Prof. S. F. Baird, Acting Secretary of the Smithsonian Institution and United States Fishery Commission; William A. DeCaindry, Secretary.

BUILDING COMMITTEE.

Thomas Cochran, Chairman; John Baird, Clement M. Biddle, William Sellers, Samuel M. Felton, James M. Robb.

TELEGRAPHIC DIRECTOR, W. J. Phillips.

DIRECTOR FIRE DEPARTMENT, Atwood Smith.

CHIEF BUREAU OF AWARDS, Dr. C. J. Stillé.

COMMITTEE ON CONCESSIONS.

John Price Wetherill, Chairman; N. Parker Shortridge, Henry Winsor.

CHIEF BUREAU OF ADMISSIONS, David G. Yates.

FOREIGN COMMISSIONS ACCREDITED TO THE INTERNATIONAL EXHIBITION OF 1876.

ARGENTINE REPUBLIC—Carlos Carranza, President, New York; Edward Shippen, Vice-President, Philadelphia; Edw. T. Davison, Treasurer, Consul General, New York; Diego de Castro, Secretary, New York; Deputy Member, E. Mara Davison.

Central Committee—Ernesto Oldendorf, President, Buenos Ayres; Eduardo Olivera, Buenos Ayres; Onesimo Leguizamon, Buenos Ayres; Diego de la Fuente, Buenos Ayres; Lino Palcois, Buenos Ayres; Ricardo Newton, Buenos Ayres; Leonardo Pereyra, Buenos Ayres; Jose M. Jurafdo, Buenos Ayres; Emilio Duportal, Buenos Ayres; Julio Victorica, Secretary, Buenos Ayres.

AUSTRIA—Rudolf Isbary, Vice-President of the Chamber of Commerce, President, Vienna; Franz Ritter von Liebig, member of the Chamber of Commerce, First Vice-President, Reichenberg; Michael Matscheko, Manufacturer, Second Vice-President. Members: Eugene Felix, President of the Society of Arts; Edward Kanitz, member of the Chamber of Commerce; Karl von Oberleitner, member of the Chamber of Commerce, Olmutz; Otto von Bauer, member of the Chamber of Commerce, Brunn; Ernst von Pontzen, Engineer; Dr. Emil Hornig, Counsellor; Dr. F. Migerka, Imperial and Royal Counsellor; Theo. A. Havemeyer, Austro-Hungarian Consul-General, New York.

AFRICA—ORANGE FREE STATE—Charles W. Riley, Consul-General, Philadelphia.

BELGIUM—Baron Gustave de Woelmont, Senator, President, Brussels; Alexander Robert, Historical Painter, member of the Belgium Academy of Fine Arts, Letters and Sciences, Vice-President, Brussels; Ch. de Smet-de Smet, Manufacturer, President of the Industrial and Commercial Society, Vice-President, Ghent; I. Clerfeyt, Chief of Bureau, Ministry of the Interior, Secretary of the Upper-Consul of Industry and Commerce, late Secretary of the Belgian Commission and Juries of the International Exhibition of Paris, London, and Vienna, Secretary, Brussels; Alfred Ancion, Manufacturer of Arms, Liege; A. J. Belpaier, Inspector-General of Railways and Telegraphs; L. de Curte, Architect, member of the Royal Commission of Monuments, and Council for the Improvement of the Arts of Design, Brussels; Felix Duhayon, Lace Manufacturer, Judge of the Tribunal of Commerce, and member of the Chamber of Commerce, Brussels; E. Duisberg, Director of the Paper Manufactories of Messrs. Godin & Co., at Huy, member of the Chamber of Commerce, Liege; Jos. Fayn, Mining Engineer, Consul of the Netherlands, Liege; P. F. Ghys-Bruneel, Lace Manufacturer, Grammont; Jules Havenith, Ship-Owner, Counsel of Austria, Hungary, Antwerp; J. Kindt, Inspector-General of Industry, Ministry of the Interior; Eugene Meeus, Manufacturer, member of the Chamber of Representatives, Antwerp; Alph. Morel, Director of the Glass Works, Lodelinsart, Charleroi; Henri Morel, Flax Manufacturer, Gand; Remy Paquot, Director of the Company of Bleyberg-es-Montzen, Verviers; Edm. Parmentier, Manufacturer, Brussels; Ferdinand Pauwels, Historical Painter, Antwerp; Aug. Ronnberg, Director-General of Agriculture and Manufactures, Ministry of the Interior; E. Sadoine, Director-General of Works, Seraing-lez-Liege; Jules Sauveur, Director-General of Public Instruction, Ministry of the Interior; E. E. A. Schaar, Chief Engineer, Director of the Arsenal and Railways of the State, Malines; Alfred Simonis, Cloth Manufacturer, member of the Chamber of Representatives, Verviers.

Resident Commissioners in Philadelphia—Count d'Oultremont, Director-General; Mr. J. Van Bree, Chief of Fine Art Department; Mr. J. Gody, Ministry of Public Works; Mr. J. Beco, Engineer, Brussels.

BRAZIL—His Highness Gaston d' Orleans, Conde d' Eu, Marshal of the Army, President; Viscount de Jaguary, First Vice-President; Viscount de Bonn-Retiro, Second Vice-President; his Excellency A. P. de Carvalho Borges, Envoy Extraordinary and Minister Plenipotentiary of his Majesty the Emperor of Brazil, Washington, D. C.; Viscount de Souza Franco Joaquin Antonio de Azevedo.

CHILI—Mr. Rafael Lorrain, Mr. Maximiano Errazuriz, Mr. Ignacio Domeyko, Mr. Armando Philippi, Mr. Francisco Solano Asta-Buruaga, Mr. Eugenio Figuerad, Mr. Lamo Barros, Edward Shippen, Esq., Philadelphia, Joseph P. Root, Esq., Francisco Gonzalez, Esq., J. Patterson Burd, Esq., Secretary and Treasurer, Philadelphia.

CHINA—Edward B. Drew, Commissioner of Customs, Chefoo; Gustave Dietring, Commissioners of Customs, Ningpo; Charles Hannen, J. L. Hammond, Commissioner of Customs, Swatou.

DENMARK—Jacob Holmblad, Manufacturer, President; Olaf Hansen, U. S. Vice-Consul, Vice-President; Joh Hansen, Austrian Consul-General, Treasurer; C. C. Burmeister, Manufacturer; V. Christesen, Manufacturer; V. Fieldskon; Sculptor; Charles Hansen, Manufacturer; William Hammer, Artist; Thomas Schmidt, New York; Th. Green, Secretary.

ECUADOR—Edward Shippen, Esq., Consul, President, Philadelphia; Gabriel Obarrio, New York; J. J. Ribon, New York; J. M. Munoz, New York; J. R. de la Espriella, New York.

EGYPT—His Highness Prince Mohammed Tawfic Pacha, President, Cairo; His Excellency Cherif Pacha, Minister of Commerce, Vice-President, Cairo; H. Brugsch Bey, Commissioner-General, Cairo. *Commissioners*—General Stone, Cairo; M. Mahmoud Bey, Astronomer, Cairo; M. Mariette Bey, Director of the Museums of Antiquities, Cairo; M. Gastinel Bey, Professor in the Medical School, Cairo; M. Rogers, Director in the Ministry of Public Instruction, Cairo; M. Acton, Chief of Division, Ministry of Commerce, Cairo; M. Baudry, Architect, Cairo; M. Delchevalerie, Attaché, Cairo.

Resident Members in Philadelphia—H. Brugsch Bey, Cairo, Commissioner-General; Brugsch, Cairo, Chief of Transportation and Installation; Behmert, Attaché, Cairo, Secretary; Edward Elias, Cairo, Secretary and Interpreter; M. Danninos, Attaché, Cairo.

FRANCE—M. M. Ozenne, Counsellor of State, Secretary-General of the Ministry of Agriculture and Commerce, Commissioner-General of International Exhibitions; Du Sommerard, Director of the Museums of Thermes and Cluny, Commissioner-General of International Exhibitions.

Committee—Organized under the Presidency of the Minister of Agriculture and Commerce—M. Duclerc, Vice-President of the National Assembly, member of the Committee on International Exhibitions; Marquis de Talhouet, Deputy; Baron de Soubeyran, Deputy; Mr. Wolowski, Deputy; Marquis de Lafayette, Deputy; M. Bonnet, Deputy; M. Flotard, Deputy; M. Laboulaye, Deputy; M. Dietz-Monin, Deputy; M. Count de Bouille, Deputy; Viscount d'Haussonville, Deputy; M. De Chabrol, Deputy; M. Jullien, Deputy; the Secretary-General of the Ministry of Agriculture and Commerce, the Director-General of Customs, the Director of the Academy of Fine Arts, the Director of Consulates and Commercial Affairs at the Ministry of Foreign Affairs; M. Outrey, Minister Plenipotentiary; M. Du Sommerard, Director of the Museum of Thermes and Cluny, the Assistant Director of Foreign Commerce, the President of the Paris Chamber of Commerce; M. Guillaume, member of the Institute; Marquis de Rochambeau, Baron Alphonse de Rothschild, M. Sieber, M. Mame (Alfred), M. Laveissiere (Jules), Dealer in Metals; M. Roulleaux Dugage, Secretary; M. de Fallois, late Chief of Bureau, Ministry of Public Works, Assistant Secretary. *Resident Commissioners*—Mr. de Laforrest, Consul-General of France, Commissioner-General, New York; Mr. Ravin d'Elpeux, Vice-Consul, Philadelphia; Capt. Anfrye, Military Attaché, French Legation, Washington.

GERMAN EMPIRE—Dr. Jacobi, Royal Prussian Actual Privy-superior Government Counsellor and Ministerial Director, President; Dr. Stuve, Royal Prussian Privy-Government Counsellor and Counsellor in the Ministry of Commerce; Dr. Wedding, Royal Prussian Counsellor of Mines; Mr. Reither, Royal Bava-

rian Counsellor of Legation; Mr. Von Nostitz-Wallwitz, Royal Saxon Envoy Extraordinary and Minister Plenipotentiary; Baron Von Spitzemberg, Royal Wurtemberg Envoy Extraordinary and Minister Plenipotentiary; Dr. Neidhardt, Grand Ducal Hessian Ministerial Counsellor; Mr. Kauffmann, Royal Prussian Counsellor of Commerce; Dr. Kruger, Hanseatic Minister Resident; Mr. Von Holloben, Royal Prussian Superior Tribunal Counsellor; Mr. Nieberding, Counsellor in the Office of the Chancellor of the Empire; Baron Von Zedlitz, Royal Prussian Provincial Counsellor. *Resident Commissioners*—John D. Lankenau, Esq., Philadelphia; Charles H. Meyer, Esq., Consul, Philadelphia; Gustavus Remak, Esq., Philadelphia; Dr. Fred. Volck, Baltimore.

GREAT BRITAIN AND COLONIES—His Grace the Duke of Richmond, K. G., Lord-President of the Council. *Joint Executive Commissioners*—Col. Herbert Sandford, R. A., Professor Thomas C. Archer, F. R. S. E., A. J. R. Trendell, Esq., Secretary, Philadelphia. *Superintendents*—T. A. Wright, Industrial Department; John Anderson, LL. D., Machinery Department; B. T. Brandreth Gibbs, Agricultural and Horticultural Departments; J. M. Jopling, Fine Art Department; J. H. Cundall, Engineer, Philadelphia. *Clerical Assistants*—Hugh Willoughby Sweny, Ernest Charrington, Philadelphia; Ernest E. Cooper, Philadelphia; John M. Brett, Philadelphia.

CANADA—Senator-Luc Letellier de St. Just, Minister of Agriculture, President, Ottawa. *Honorary Commissioners*—Hon. Adam Crooks, Provincial Treasurer, Ontario; Hon. P. A. Garneau, Minister of Agriculture, Quebec; Hon. P. Carteret Hill, Provincial Secretary, New Brunswick; Hon. J. J. Fraser, Provincial Secretary, New Brunswick; Hon. L. C. Owen, Attorney-General, Prince Edwards Island; Hon. W. J. Armstrong, Minister of Agriculture, British Columbia; Hon. Mr. Nolin, Minister of Agriculture, Manitoba. *Executive Commissioners*—Hon. E. G. Penny, Senator, Montreal, Quebec; Hon. R. D. Wilmot, Senator, Sanbury, New Brunswick; D. Macdougall, Esq., Berlin, Ontario; J. Perrault, Esq., Secretary, Ottawa.

NEW SOUTH WALES—His Honor Sir James Martin Knight, Chief Justice, President; Hon. John Hay, President of the Legislative Council, Vice-President; Hon. George Wigram Allen, Speaker of the Legislative Assembly, Vice-President; Hon. Sir Edward Deas Thomson, C. B., K. C. M. G., M. L. C., Vice-President. *Commissioners*—The Rev. Charles Badham, D. D., Samuel Bennett, Esq., James Byrnes, Esq., R. W. Cameron, Esq., The Hon. G. H. Cox, M. L. C., J. R. Fairfax, Esq., Andrew Garran, Esq., LL. D., Hon. S. D. Gordon, M. L. C., Henry Halloran, Esq., Edw. S. Hill, Esq., Hon. Thomas Hoet, M. L. C., P. A. Jennings, Esq., G. W. Lord, Esq., M. P., Hon. Sir William Macarthur, Knight, M. L. C., William Macleay, Esq., F. L. S., T. S. Mort, Esq., Benjamin Palmer, Esq., Mayor of Sidney; Commander Thomas Stackhouse, R. N., Alexander Stuart, Esq., M. P., George Thornton, Esq., J. P., William Wallis, Esq., James Watson, Esq., M. P., Hon. J. B. Watt, M. L. C., Fitz William Wentworth, Esq., J. H. Williams, Esq., John Williams, Esq., W. C. Windeyer, Esq., Robert Wisdom, Esq., M. P., John Woods, Esq., William Wolfen, Esq., Charles Robinson, Esq., Secretary.

VICTORIA—Sir Redmond Barry, Acting Chief Justice of the Supreme Court, President; Hon. J. J. Casey, M. P., Hon. J. F. Sullivan, M. P., Hon. C. J. Jenner,

M. L. C., James Munro, Esq., J. McIlwraith, Esq., L. J. Sherrard, Esq., Count de Castelnau, Hon. S. H. Bindon, James Bosisto, Esq., M. P., James Gatehouse, Esq., Mayor of Melbourne; J. I. Bleasdale, D. D., Hon. Sir John O'Shanassy, K. C. M. G., Hon. Sir James McCulloch, M. P., Hon. John Alexander Macpherson, M. P., Hon. John Thomas Smith, M. P., Leslie James Sherrard, Esq., John Danks, Esq., George Collins Levey, Esq., Secretary.

SOUTH AUSTRALIA (*Adelaide*)—His Excellency, A. Musgrave, Esq., C. M. G., Chairman; Hon. W. Everard, Commissioner of Crown Lands; Hon. H. E. Bright, M. L. C., J. P., Commissioner of Public Works; Hon. John Crozier, M. L. C., J. P., Hon. Wentwood Cavanagh, Esq., M. P., J. P., Hon. Josiah Boothly, Esq., J. P., Hon. E. W. Andrews, Esq., J. P., Hon. S. Davenport, Esq., J. P., Hon. Joseph Crompton, Esq., J. P., Hon. George McEwan, Esq., J. P., Dr. Schomburg, D. P., J. P., Caleb Peacock, Esq., J. P., R. D. Ross, Esq., M. P., J. P., E. S. Smith, Esq., M. P., J. P., Walter Hackel, Esq., I. A. Holden, Esq., J. P., S. V. Pozey, Esq., C. J. Coates, Esq., F. G. Waterhouse, Esq., C. I. Coates, Honorary Secretary.

CAPE OF GOOD HOPE—Mr. C. Crawford Coates, Executive Commissioner and Agent, Philadelphia.

GREECE—Dr. Botassis, Special Representative, Consul-General, New York.

GUATEMALA AND SALVADOR—His Excellency Don Vincente Dardon, Minister Plenipotentiary, Washington, D. C.

HONDURAS—Governor Don Francisco Bardales, General Don E. de Salignac, Don Jose Maria Fiallos, Don Juan Ramon Valenzuela. *Resident Commissioners*—Don Vincente Dardon, Minister Plenipotentiary, Washington, D. C.; T. Ansoatigin, Consul, New York.

ITALY—H. E. Baron Blanc, Minister Plenipotentiary, Washington, D. C.; Count B. Litta, First Secretary of Legation, Washington, D. C.; M. Angelo Gianelli, Agent, Philadelphia.

JAPANESE EMPIRE—His Excellency Okubo Toshimichi, Minister of the Interior and Privy Counsellor, President; His Excellency Lieutenant-General Saigo Yorimichi, Imperial Army, Vice-President; Mr. Kawase Hideharu, Vice-President Bureau of Agriculture and Industry, Commissioner-General; Mr. Tanaka Yoshio, Minister of the Interior; Mr. Sekizawa Akekio, Bureau of Industry; Mr. Yamataka Nobuakira, Bureau of Industry; Mr. Shioda Masashi, Bureau of Industry; Mr. Ishihara Toyoyasu, Bureau of Industry; Mr. Ishida Tametake, Bureau of Industry; Mr. Yamao Tsunetaro, Bureau of Industry; Mr. Kubo Hiromichi, Minister of the Interior; Mr. Notomi Skejiro, Bureau of Industry; Mr. Shibata Hireschi, Bureau of Industry; Mr. Makiyama Kohe, Bureau of Industry; Mr. Ishii Yoshitaka, Bureau of Industry; Mr. Asahi Nobori, Ministry of the Interior; Mr. Kawara Noritachi, Bureau of Industry; Mr. Sasashe Motoakira, Bureau of Industry; Mr. Takeda, Bureau of Agriculture and Industry; Mr. Sugiyama Katsunari, Bureau of Agriculture and Industry; Mr. Hitaka Giro, Lieutenant Imperial Army; Mr. Omori Ichin, Bureau of Agriculture and Industry; Mr. Asami Tadatsune, Bureau of Agriculture and Industry; Mr. Fukui Mokoto, Bureau of Agriculture and Industry; Mr. Fritz Cunliffe Owen, Attaché, Philadelphia.

LIBERIA—J. S. Payne, Esq., Monrovia; Edward S. Morris, Esq., Consul, Philadelphia.

MEXICO—Mr. Romero Rubio, President, city of Mexico; Ramon y Alcaraz, city of Mexico; Gabriel Mancera, city of Mexico; Rafael Martinez de la Torre, city of Mexico; Julio Zarate, city of Mexico; Antonio del Castillo, city of Mexico; Sebastian Camacho, city of Mexico; Eduardo E. Zarate, Secretary, city of Mexico. Special Commissioner, Mr. E. Avila, Washington, D. C.

NETHERLANDS—Dr. E. H. von Baumhauer, Honorary Professor, Secretary of the Dutch Society of Sciences, Director of the Society for the Advancement of Industry in the Netherlands, President, Haarlem; F. de Casembroot, Rear Admiral Aid-de-camp in Extraordinary Service to His Majesty the King of the Netherlands, and Member of the States General, Second Chamber, The Hague; A. H. Eigeman, Industrial President of the Society of Dutch Industrials, Leiden; P. Harsten, Chairman of the Amsterdam Board of Commerce, Amsterdam; J. E. Van Heemskerck Van Beest, Dutch Royal Navy, The Hague; Dr. W. T. A. Jonckbloet, President of the Committee of Superintendence of the Academy of Imitative Arts, Amsterdam; D. Van der Kellen, Jr., Member of the Administration Society *Arti et Amicitiae*, Amsterdam; L. C. Van Kerkwyk, Pensioned Lieutenant-Colonel Corps of Engineering, Member of the Council of Administration of the Royal Institution of Engineers, The Hague; M. M. de Monchy, President of the Board of Commerce, Rotterdam; Dr. J. Th. Mouton, Vice-President of the Society to Promote Manufactures and Trade-Industry in the Netherlands, The Hague; C. T. Van der Oudermeulen, President of the Dutch Society of Agriculture, The Hague; Baron W. G. Brantsen van de Zyp, LL. D., Lord in Waiting to His Majesty the King of the Netherlands, Arnheim; Dr. M. W. C. Gori, Doctor of Medicine, late Medical Officer of the Netherlands Army, Ophthalmic Surgeon, Amsterdam; R. C. Burlage, Consul-General of the Netherlands, New York; L. Westergaard, Consul of the Netherlands, Philadelphia; C. Muysken, Civil Engineer, Secretary, Haarlem.

NORWAY—Herman Baars, Bergen; William C. Christopherson, Buenos Ayres; Gerhard Gade, United States Consul, Christiania.

PERU—Jose Carlos Tracy, President, New York; Frederick L. Barreda, Edward Villena, Charles Nasy.

RUSSIA—Privy Councillor Butoffsky, President; Privy Councillor Kobeko, Director; Councillor of State Yermakof, Vice-Director of the Department of Commerce and Manufactures; Councillor of State Vjshnegradsky, Director of the Technological Institute; Councillor of State, Beilsky, Special Official Department of Commerce and Manufactures, Commissioner-General; Councillor of State Podobiedof, Director of Section Department of Commerce and Manufactures; Councillor of State Ilin, Professor in the Technological Institute; Councillor of State Behr, Special Official, Ministry of Finance; Councillor of the College Timiriasef, Director of Section Department of Commerce and Manufactures.

SANDWICH ISLANDS—Hon. S. G. Wilder, Minister of the Interior, Honolulu; Hon. J. U. Kawainui; Elisha H. Allen, Jr., New York.

SIAM—J. H. Chandler, Commissioner, Bangkok.

SPAIN—Colonel Lopez Fabra, Royal Commissioner-General; Don Joaquin Oliver, Secretary; Don Alvarado de la Gandara, Director of the Industrial

Department; Count del Donadio, Director of the Department of Fine Arts; Don Jose Jordana y Morera, Director of the Agricultural Department. *Chiefs of Bureaus*—Don Enrique Brotons, Don Alfredo Escobar, Don Enrique Borrell. *Chiefs of Installation*—Don Bernardo Forzano, Don Francisco Foranzo, Don Francisco Parody, Interpreter; Don Juan Morphy, Consul-General of Spain, Member of the Commission; Don Julian A. Principe, Vice-Consul, Attaché; Don Miguel Gonzales, Attaché; Don Jose Fonrodona, Attaché.

SWEDEN—P. A. Bergstrom, late Minister of Interior, President Board of Domains, President, Stockholm; C. O. Troilius, Director-General of Government Railways, Vice-President, Stockholm; F. L. von Dardel, Director-General Board of Public Buildings, Stockholm; Ch. Dickson, M. D., Göteborg; Baron A. H. E. Fock, Chief of Board of Controls, Stockholm; Professor F. W. Scholander, Academy of Fine Arts, Stockholm; C. F. Lundstrom, Manufacturer, Stockholm; N. H. Elfving, Consul-General, Stockholm; S. Stenberg, Professor Carolinian Medico-Chirurgical Institution, Stockholm; A. R. Ackerman, Professor of School of Mines, Stockholm; J. Bolinder, Manufacturer, Stockholm; J. Lenning, Manufacturer, Norrköping; C. L. Lundstrom, Manufacturer, Göteborg; Ch. G. Breitholtz, Colonel of Artillery, Stockholm; K. Peyron, Captain in the Navy, Chamberlain, Stockholm; E. Widmark, Chief of the Board of Public Education, Stockholm; H. Widegren, Superintendent of Fisheries, Stockholm; P. E. Sidenbladh, Secretary of the Central Board of Statistics, Stockholm; V. Norman, Captain of Engineers, Secretary, Stockholm; E. Brusewitz, Engineer, Mining and Metallurgy.

Resident Commissioners in Philadelphia—C. Juhlin Dannfelt, Commissioner-General, Stockholm; L. Westergaard, Consul, Assistant Commissioner, Philadelphia; Dr. J. Ph. Lindahl, Secretary, Lund; M. Isæus, Architect, Stockholm; W. Hoffstedt, Engineer, Stockholm; A. E. Jacobi, Engineer, Stockholm.

Special Commissioners—C. J. Meijerberg, Superintendent of Primary Schools, Educational Department, Stockholm; G. W. Bergman, Captain of Artillery, Army Department, Stockholm; Baron O. Hermelin, Fine Art Department, Stockholm.

SWITZERLAND—Colonel H. Rieter, Commissary-General, Winterthur; Dr. Emile Schumacher, Assistant Commissioner; N. I. Andersson, Professor Royal Academy of Science, Educational Department; Arnold Steinmann, Secretary of Commerce, Zurich; Dr. Adolph Hirsch, Director of the Observatory, Neuchâtel; Colonel Siegfried, Chief of the Federal Topographical Bureau, Berne; Dr. Frederic de Tochudi, St. Gall; Mr. Edward Guyer, Secretary-General, Zurich; Mr. John Icely, Engineer, Basle; Mr. Rud. Koradi, Consul, Resident Commissioner, Philadelphia.

TUNIS—His Excellency Sidi Heussein, General of Division, Minister of Instruction and Public Works, President.

TURKEY—His Excellency G. d'Aristarchi, Minister Plenipotentiary, Washington, D. C.

VENEZUELA—Mr. Leon de la Cova, Consul, 218½ Walnut street, Philadelphia, Dr. Adolphus Ernst, Professor University at Caracas.

CHAPTER VII.

GETTING TO THE EXHIBITION—ACCOMMODATIONS FOR VISITORS.

Rush of Visitors to Philadelphia—Arrangements for Transportation of Visitors by the Railroads of the United States—Settlement of the Question of Fares—Arrangements of the Railroads leading into Philadelphia—How to reach the Exhibition Grounds from the city—The Pennsylvania Railroad—Magnificent equipment of the Road—The Model Railroad of the Union—Arrangements of the Philadelphia & Reading Railroad—The Schuylkill Steamboats—The Street Railway arrangements—Cabs and Carriages—Regulations concerning them—The Philadelphia Hotels—Their Capacity for accommodating Guests—The Centennial Lodging-House Agency—Boarding Houses—Suburban Hotels—Circular of the Centennial Commission with reference to Accommodations for Visitors.

THE opening of the Centennial Exhibition has naturally drawn thousands of visitors to Philadelphia. As thousands are yet to come, it will be both interesting and useful to glance for a moment at the means provided by the various railroad lines of the country for reaching Philadelphia, at the means of reaching the Exhibition grounds from the city, and at the arrangements that have been made for accommodating the vast throng of strangers who will crowd the city of Philadelphia during the continuance of the Exhibition.

The arrangements for transporting visitors from the various parts of the country to Philadelphia are admirable. The bulk of the passenger traffic is controlled by the Pennsylvania Railroad, the most perfect organization of its kind in this country. By its main line visitors are brought from all parts of the West, and are set down at the Exhibition doors. By its New Jersey Division visitors from New York and the Eastern States are brought to the same spot. This company has granted the

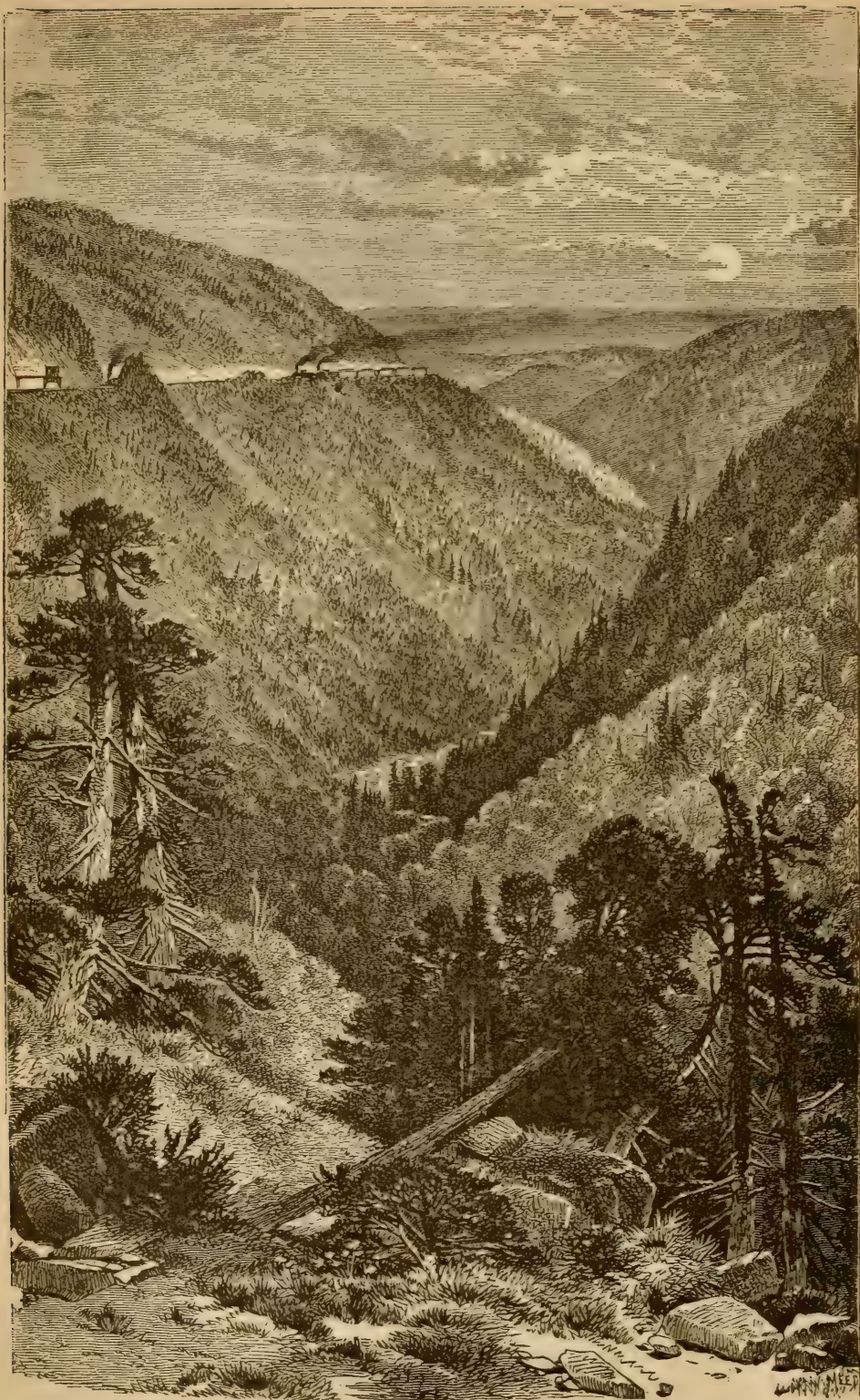
use of the new depot it has erected opposite the Exhibition grounds to the Philadelphia, Wilmington & Baltimore Railroad, by which visitors from South and Southwest may reach the Exhibition. The Philadelphia & Reading Railroad Company have erected a new passenger station within the limits of the Park, at the foot of the hill on which Memorial Hall stands. Passengers from central Pennsylvania and the West can reach the Exhibition gates by this road, without loss of time.

The officials of all the railroads terminating in Philadelphia were busy for months preparing for the increased amount of travel which the Exhibition would draw to that city. Their tracks were overhauled and put in order; new cars were built; and every arrangement made by which the comfort and safety of large bodies of travellers could be secured. By the arrangements now in force 145,000 visitors can be transported daily from the various points of the Union to Philadelphia.

A few months before the opening of the Exhibition a meeting of the General Ticket Agents of the great trunk lines between Philadelphia and the West was held at Louisville, Kentucky, to consider the question of fares. Nearly every principal road in the Union was represented, one hundred agents being in attendance. They agreed upon a rate which may be generally stated as follows :

To	New York. Reduction.	Phila. Reduction.	Phila. via N. Y. Increase.
From Detroit	25 p. c.....	\$1.....	\$1
“ Toledo.....	25 p. c.....	1.....	1
“ Cleveland	25 p. c.....	1.....	1
“ Crestline.....	25 p. c.....	1.....	1
“ Columbus.....	25 p. c.....	1.....	1
“ Cincinnati.....	25 p. c.....	1.....	1

The round-trip tickets to New York from the above places may be sold at points west thereof, and east of Omaha, and at competitive points south of the Ohio river, at a reduction of 25 per cent. from convention rates; to Philadelphia at \$1 less than round-trip rates to New York; to Philadelphia *via* New York at \$1 more; and from territory east of those points the basis of



SCENE AT ALLEGRIPPAS, PENNSYLVANIA RAILROAD.

reduced rates and limit for round-trip tickets is to be fixed by trunk lines, and from competitive points between trunk lines in said territory the rate to Philadelphia *via* New York is to be two dollars less than rates to Philadelphia by direct or short line.

Fares from the principal points in the East have been reduced twenty-five per cent. for the round trip.

The Pennsylvania Railroad, in order to accommodate the enormous traffic between that city and Philadelphia, will run on the New York and Philadelphia branch, during the continuance of the Exhibition, two regular excursion trains daily, in addition to the usual express and mail trains; and will also sell round-trip tickets good for all trains, except "the limited express," at reduced rates. Tickets, good only for the day of issue, will be sold at \$4 for the round trip; tickets good for fifteen days at \$5. The first daily Centennial excursion train is second-class, and leaves New York at 5.25 in the morning, arriving at the Exhibition grounds at 9.30 A. M. Second-class round-trip tickets for this train cost \$3. Third-class tickets will also be issued for this train, the round trip costing \$2. Third-class passengers will be supplied with box cars provided with hard seats, and will not have an opportunity to start on the return trip until after 7 P. M. They will thus have nine hours of daylight for the Exhibition. The first-class excursion train, to which will be attached second-class cars, will leave New York daily, at 6.25 A. M., arriving at the Exhibition grounds daily at 9.30, the returning time being an hour less than that of the second-class excursion train. First-class round tickets, good only on the day of issue, will be \$4; second-class tickets, \$3. Half-rate excursion tickets are to be sold for children between the ages of five and twelve years.

The new line from New York to Philadelphia, by way of the North Pennsylvania and New Jersey Central roads, will not run excursion trains, but round trip tickets will be sold, good for one day at \$4; good for fifteen days at \$5. This road does not extend to the Centennial grounds, but passengers by it can connect with the cheap trains of the Pennsylvania road between

Kensington and the Exhibition. The connection is made at the North Penn junction on the Pennsylvania Railroad.

The Philadelphia, Wilmington & Baltimore Railroad will run an excursion train from Baltimore daily during the Exhibition. The train will leave Baltimore at 6 o'clock A. M., and will arrive at the Pennsylvania Railroad depot opposite the Exhibition gates at 9.30. Returning, it will leave the Pennsylvania depot at 6.55 P. M., and will reach Baltimore about 10.30 P. M., giving visitors an entire day at the Exhibition. The round trip fare by this train will be \$4. By the regular trains round trip tickets good for two days will be \$5.

The Philadelphia & Reading Railroad will also run several daily excursion trains from Reading, Allentown, Bethlehem, and other points on the main line at reduced rates.

Thus it will be seen that there is ample accommodation for all who choose to visit Philadelphia during the Exhibition.

The most interesting question to the stranger in Philadelphia is how to reach the Exhibition grounds. From what follows it will be seen that the transportation facilities are fully equal to any demand that may be made upon them.

The Exhibition buildings are located on the west bank of the Schuylkill, about two and a half miles from the centre of the city. The Schuylkill is crossed by ten bridges, all of which can be used as approaches to the Centennial grounds. Four of these are used exclusively by steam railroads, a fifth by a steam railroad and horse vehicles, and the remaining five by horse vehicles and pedestrians.

The *Pennsylvania Railroad* will run excursion trains from the Kensington depot as follows :

PENNSYLVANIA RAILROAD.

Centennial Accommodation Trains.

On Wednesday, May 10th, and thereafter, trains will be run from Kensington to the Centennial Depot, as follows :

Leave Kensington at 6, 6.25, 7, 7.30, 8, 8.30, 9.05, 9.30, 10, 10.45, and 11.55 A. M., and at 12.30, 1, 1.35, 2, 5.40, 6.10 and 6.40 P. M.

Leave Germantown Junction at 6.23, 6.48, 7.23, 7.53, 8.23, 8.53, 9.28, 9.53, 10.23, 11.08 A. M., and 12.18, 12.53, 1.23, 1.58, 2.23, 6 and 7 P. M.

Arrive Centennial Depot at 6.35, 7, 7.35, 8.05, 8.35, 9.05, 9.40, 10.05, 10.35 and 11.20 A. M., and 12.30, 1.05, 1.35, 2.10, 2.35, 6.10, 6.40 and 7.10 P. M.

Returning, leave Centennial Depot at 6.45, 7.45, 8, 8.15, 8.45, 9.15, 10, 10.30 A. M., and 12 M., and 12.30, 1.15, 4.50, 5.20, 5.50, 6.20, 6.50 and 7.40 P. M.

These trains stop at Frankford road and Ridge avenue.

Fare for single trip, 15 cents; round trip, 25 cents. Children between the ages of five and twelve, single trip, 10 cents; round trip, 15 cents.

Tickets sold at Kensington, Germantown Junction, and at Centennial Depot. Conductors sell tickets from stations where there are no agents. Exchange tickets sold on street cars at 20 cents; children, 15 cents, good in either direction on Centennial trains.

The same road will also run excursion trains from the southern part of the city, leaving Washington street wharf, and stopping at Broad street, the United States Arsenal, and West Philadelphia, as follows:

PENNSYLVANIA RAILROAD.

Washington Avenue Centennial Accommodation Trains.

On and after Wednesday, May 10th, trains will run from Washington street wharf to the Centennial Depot as follows:

Leave Washington street wharf at 8, 8.30, 9, 9.30, 10, 10.30 A. M., and 12 M., and 1, 1.30, 2, 3, 3.30 P. M.

Trains stop at Broad street, United States Arsenal and West Philadelphia.

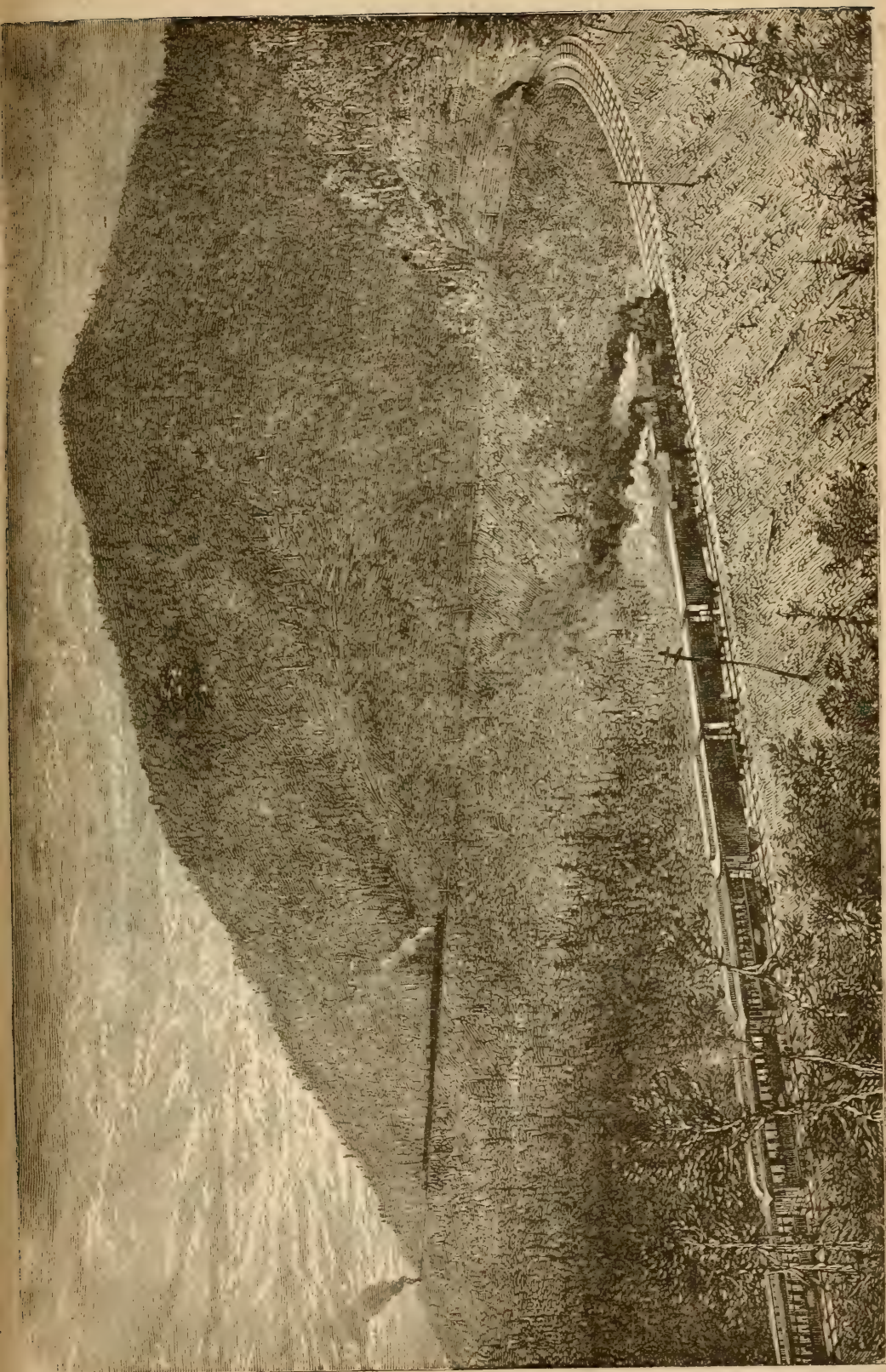
Returning, leave Centennial Depot at 8.55, 9.25, 9.55, 10.25, 10.55, 11.25 A. M., and at 12.55, 1.55, 4.30, 4.55, 5.25, 5.55, 6.30 and 7 P. M.

Rates of Fare: Single trip, 15 cents; round trip, 25 cents. Children between five and twelve years, single trip, 10 cents; round trip, 15 cents. Exchange tickets are sold on street cars, full rate, 20 cents; half rate, 15 cents, good in either direction on Centennial trains. Tickets between Washington platform, West Philadelphia and Centennial Depot, 7 cents, or ten tickets for fifty cents. Tickets are sold at all stopping-places of trains. Five cents additional to above rates charged when fare is paid on the cars.

The extraordinary arrangements made by the Pennsylvania Railroad for transporting passengers from all parts of the Union to Philadelphia will warrant a brief reference to this great "American institution," at this point. It was begun in 1846 and completed in 1854. "It was," says Mr. Sipes, in his interesting account of the road, "constructed in a superior manner, and with the improvements since made, is undoubtedly the most perfect road in America. Notwithstanding it had to overcome

the great Allegheny mountains, a barrier which for a quarter of a century had been considered insurmountable by a railroad without inclined planes, yet it was carried across by engineering skill with a facility really astonishing. The road commences a gradual ascent at Harrisburg, where it is 310 feet above tide, and rises regularly. At Lewistown it is 480 feet above tide; at Huntingdon it has ascended to 610 feet; at Tyrone it has climbed to an altitude of 886 feet; and at Altoona, where it reaches the base of the mountain proper, it is at an elevation of 1168 feet. Up to this point the heaviest gradient per mile has not exceeded twenty-one feet. From a short distance west of Altoona this gradient is increased to ninety-five feet per mile on straight lines, and eighty-two feet per mile on curves. Thus ascending, it reaches its culminating point at the west end of the great tunnel, where its altitude above tide is 2161 feet. Its maximum gradient is twenty-one feet per mile less than the Baltimore & Ohio Railroad, and is equalled by several railroads in the New England States. The highest gradient west of the tunnel is fifty-two and eight-tenths feet per mile, and the average gradient on that end is twenty-six and four-tenths feet per mile. At Johnstown the elevation above tide is 1184 feet; at Greensburg it is 1091 feet; and at Pittsburgh it is 748 feet, being 438 feet higher at its western terminus than at Harrisburg, where it commences to overcome the barrier presented by the mountains."

The Pennsylvania Railroad extends from Philadelphia to Pittsburgh, with a number of branches, giving it a total mileage of 888 miles. By the purchase of the New Jersey, Camden & Amboy, and Philadelphia & Erie Railroads, an additional mileage of 763 miles was gained, making the total number of miles owned and operated by the Pennsylvania Railroad, 1651, and giving it outlets at New York and upon Lake Erie. A number of branches or feeders had been acquired west of Pittsburgh, by lease and purchase, extending the line of the road to Chicago, St. Louis, Cincinnati, and Louisville. In order to simplify and render more efficient the management of these western connections, a charter was procured from the Legislature of Pennsyl-



THE HORSE-SHOE CURVE, PENNSYLVANIA RAILROAD.

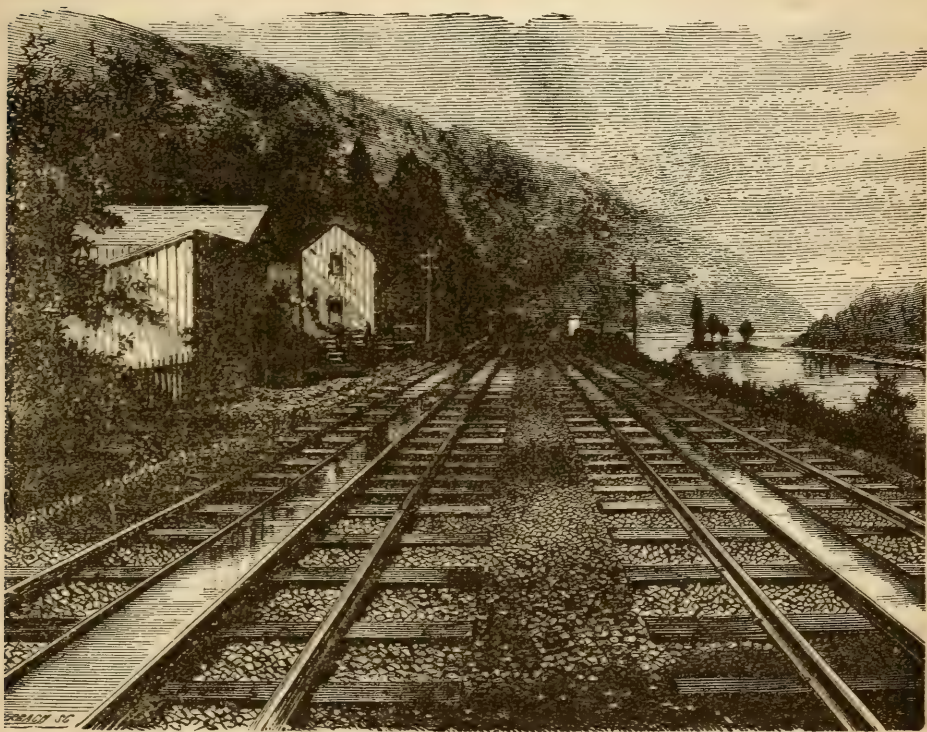
vania incorporating the "Pennsylvania Company," to which all the interests of the Pennsylvania Railroad west of Pittsburgh were transferred on the 1st of March, 1871. The Pennsylvania Railroad retained a controlling interest in the new company. The total number of miles of road owned and controlled by the "Pennsylvania Company" is 1715. The Pennsylvania Railroad has also a controlling interest in the Pittsburgh, Cincinnati & St. Louis Railroad, better known as "The Panhandle Route," which with its connections embraces a total of 1150 miles, and in the St. Louis, Vandalia, Terre Haute & Indianapolis Railroad, with a mileage of 238 miles. Thus the total number of miles of railroad owned, operated, or controlled by the Pennsylvania Railroad Company is 6615. It will be seen from this showing that the Pennsylvania Railroad Company is the largest and most powerful corporation in the world.

The main line of the Pennsylvania road is in all respects the most splendid piece of railroad engineering in America. The road-bed is perfect and the track is laid with a solidity and care that render a high rate of speed compatible with safety. The discipline is of the most rigid and thorough character, and a faithful performance of duty is exacted from every employé. The rolling stock is mainly constructed at the company's shops at Altoona. The passenger trains are supplied with the "Westinghouse Air-brake," and are lighted with gas. The cars are handsome and are luxuriously upholstered. The sleeping and parlor cars are of the Pullman class; and "Pullman Hotel Cars," in which meals are furnished passengers while the train is in motion, have recently been placed on the line. The "Wharton Patent Switch" is used on the entire line, and furnishes a perfect guard against accidents from misplaced switches.

"Another improvement in use upon the road is the *Track Tank*, which enables a locomotive to supply itself with water while the train is in motion. This is an English invention, and in practice here is found to work satisfactorily. Heretofore much time has been lost by the frequent stoppages necessary to fill the water-tank; and, in consequence, express trains

had to acquire an extremely high rate of speed between stations to make up for this loss. As now arranged, but two stoppages are necessary between Philadelphia and Pittsburgh—at Harrisburg, after a run of one hundred and five miles, and at Altoona, after a run of one hundred and thirty-two miles, leaving a run of one hundred and seventeen miles to Pittsburgh.”

The tank is a trough of wood laid in the centre of the track, and is about eighteen inches in width and six inches in depth, with an inclined plane at each end from the bottom to the top



TRACK TANK, PENNSYLVANIA RAILROAD.

of the tank. It is filled with clear water. As the locomotive reaches the first end of the tank, a pipe is let down which slides down the inclined plane into the trough. The momentum of the train forces the water through this pipe up into the reservoir of the tender. As the end of the tank is reached the pipe slides up the incline, and is caught up in its place in the tender.

The great number of fast trains which pass over the main

line and the New Jersey Division daily have induced the company, as an additional measure of safety, to adopt the system of *Block Signals*. As this system will be of the deepest interest to the thousands who will this year owe their safety to it, we present an account of it as conducted on the New York Division, merely adding that the system is the same on the main line. "The whole line is divided into sections of two or three miles in length, and each subdivision is supplied with telegraph operators and signal men on constant duty. At the commencement of each section is placed a frame or apparatus for displaying signal-targets or lights, and by these the engineers are guided with perfect safety, when otherwise it would be necessary to intrust the lives of the travelling public to the probabilities of all trains being on time, or all conductors knowing the full extent of their duty. The manner in which these signals are classified and read is exceedingly simple. When the section is entirely clear, a white light or target is shown; but when the train enters a section—or 'block,' as it is termed—a red one is displayed, and this indicates that no other train can follow until the white color shows that the division is again clear. Presuming that a train has just entered a 'block,' and the red light debars all others from immediately following, let us in imagination whirl along with the moving cars and note the next movement. Only a few moments are required to pass over the block, and as the white light at the next section is displayed the iron horse speeds rapidly on from the first division to the second. The instant it passes the line the fact is telegraphed back to the commencement of the block, the red light is superseded by the white, and the next train dashes in. Before the rear train has cleared the first block the first engine has passed into the third section, and, as the telegraph says and the white light indicates that the second block is again clear, the rear train can speed along into the second without danger. Thus section after section is occupied by train after train, and as they dash onward there is a constant pulsation of intelligence all along the line between the two cities, of which the passengers on the trains are totally

unconscious. They do not realize, as they sweep on with the speed of the wind, that their every movement is recorded by the finger of electricity, shooting back and forth with the velocity of light. Should any delay occur the trains would be obliged to stop on whatever block they happened to occupy, and, as every subdivision of the road belongs to the train which is in it at the time, there can be no possibility of collisions or danger from trains in the rear. When the obstruction is removed the delayed engine passes on, the telegraph notes the fact, white lights take the place of red, and again all are whirling along to their destination. Besides the numerous passenger trains, there is a great number of freight trains constantly in motion. These have to make their way along as best they can, being careful to keep always out of the way of passenger trains. Knowing just what time they can make, and also when the passenger trains are due at any point, the conductors and engineers always manage to make some convenient side-track in time to escape collision. When a freight train is running on any block or section, a green signal is shown, which indicates that succeeding trains may follow with caution. If the next train carries passengers, it is the business of the freight to get out of the way; if it is also a freight train, it will probably not overtake its predecessor. Some of the principal side-tracks have telegraph stations at both ends, so that no time need be lost by the train hands. There are probably more than fifty telegraph offices scattered along the ninety miles of road. The arrangements usually work so perfectly that it is seldom necessary for any train to halt before entering a block. Signal follows signal in quick succession along the line, indicating perfect safety upon the crowded highway. At the superintendent's office, in Jersey City, a large chart is kept, on which is marked a record of the progress of each train upon the road as recorded by telegraph. The officers are thus able to see the position of affairs at all times. A train cannot be a minute behind at any station without the fact being instantly known at head-quarters. It will be seen from this that not only are all the engineers and conductors in constant cognizance of the

movement of the trains both ahead and behind them, but their own position can be determined at a glance by those to whom they are directly responsible. When, in addition to all these precautions, it is remembered that, as a general thing, conductors and engineers are intelligent and experienced men, some adequate idea can be gained of the marvellous progress



BLOCK SIGNAL STATION, PENNSYLVANIA RAILROAD.

recently made in the management of the great railroads of the country.”

The scenery on the main line of the Pennsylvania road has long been famous for its beauty. The road is in all respects the “Model Railroad of America,” and as such will constitute one of the greatest objects of interest to visitors to the Exhibition.

The *Philadelphia & Reading Railroad* constitutes one of the main lines from the city to the Exhibition grounds. Its trains start daily from its three depots as follows :

PHILADELPHIA AND READING RAILROAD.

Steam Trains to and from Centennial Exhibition daily, commencing May 7th, 1876.

Leave Broad and Callowhill every fifteen minutes, from 8 A. M. to 7.45 P. M.

Leave Ninth and Green every fifteen minutes, from 8 A. M. to 7.30 P. M.

Leave Richmond street every thirty minutes, from 8.10 A. M. to 7.10 P. M.

Trains will leave Centennial Station at similar intervals.

Broad street trains stop at Eighteenth street, Twenty-third street and Brown street.

Ninth street trains stop at Girard and Columbia avenues.

Richmond trains stop at Trenton Crossing, Frankford road, Kensington avenue, Second street, Tioga street, Nicetown.

Single fare, 15 cents. Package tickets, five for 50 cents. Exchange tickets with street car lines, 15 cents.

A line of steamboats has been established on the Schuylkill between the landing at old Fairmount and the Exhibition grounds. The boats run at intervals of ten minutes during the day, and land passengers at the foot of the hill below the Horticultural building. A broad plank walk has been constructed from the river to the entrance to the grounds. The fare is ten cents each way, or fifteen cents for the round trip. This is one of the pleasantest routes to the Exhibition.

The *Street Railroads*.—The street railway system of Philadelphia is admitted to be the most perfect in the world. All the prominent lines have extended their tracks to the entrances to the Exhibition grounds on Elm avenue, and transport passengers thither from the various parts of the city. A well-devised system of tracks has been laid on Elm and Belmont avenues, by which all crowding is prevented, and the cars arrive and depart without confusion. It is estimated that three hundred cars per hour may arrive and depart from this point. The various street car lines transported on the day of the opening of the Exhibition over 200,000 people without an accident. The rates of fare are as follows: Single fares, seven cents; four tickets, twenty-five cents, these tickets being good on all the

city roads; children under ten years, four cents; exchange tickets, nine cents.

Exchange tickets are sold by all the conductors (except those of the Union and Ridge avenue lines); so that a person going north or south can exchange with a car going east or west (or vice versa) and thereby avoid paying two full fares. All roads having branch lines give transfer tickets or "passes" without additional charge.

Night cars are run on the Chestnut and Walnut streets, Tenth and Eleventh streets, Thirteenth and Fifteenth streets and Union lines after midnight. The Market street line also run cars from the West Philadelphia depot upon the arrival of trains after midnight. The fare is ten cents, and no exchange tickets are sold or received on the night cars.

Lines of omnibuses, hacks and other vehicles have been established between the city and the Centennial grounds. The following is the city ordinance relating to the rates of fare:

The rates of fare, except when otherwise expressly agreed upon before starting, are to be as follows:

For carrying one passenger any distance not exceeding one mile, the sum of seventy-five cents; two passengers, one dollar and twenty-five cents; and for every additional passenger, twenty-five cents.

For conveying one passenger any distance more than a mile, and not exceeding two miles, one dollar and a quarter; two passengers, one dollar and seventy-five cents, and for every additional passenger, twenty-five cents.

For carrying a passenger any distance over two miles, for any additional mile or part of a mile, the sum of fifty cents in addition to the fare for the first two miles, and for every additional passenger, fifty cents.

For the use of a carriage by the hour, with one or two passengers, for the purpose of going from place to place, and stopping as often as may be required, one dollar and a half per hour, and for each additional passenger, twenty-five cents.

Where the hiring of a hackney-carriage or carriages is not at the time specified to be by the hour, it shall be deemed to be by

the mile ; but in case the distance shall be more than four miles, the rate to be charged for each additional mile shall be fifteen cents for each passenger, as herein provided. A mile shall be taken and construed to mean twelve blocks of one hundred numbers on numbered streets.

Whenever any hackney-carriage or carriages, not engaged by the hour, shall be detained by the passenger or passengers, the owner or owners, or driver, shall be allowed at the rate of seventy-five cents per hour, in addition to the rates hereby established.

For children between five and fourteen years of age half price is only to be charged, and for children under five years of age no charge is to be made, if not more than one such child to two adults.

Every driver, or owner or owners, of a hackney-carriage shall carry, transport, and convey in and upon his carriage, in addition to the person or persons therein, one trunk, valise, saddle-bag, carpet-bag, portmanteau, or box, not exceeding one hundred pounds in weight, if requested to do so, without charge or compensation therefor ; but for every additional trunk, or other articles above enumerated, shall be entitled to demand and receive ten cents.

It is further provided, that on a card to be conspicuously placed in each carriage must be printed in English, French, Spanish and German, the above rules, the registered number of the coach, and also the name and residence of the owner. In section eighth of the ordinance it is provided, that if any owner or driver of a coach shall demand or receive any greater sum than he or they may be legally entitled, all claim for compensation shall be forfeited.

The *Exhibition Transfer Company* run a line of fifty or sixty handsome coaches from the depots and principal hotels to the main entrance to the Exhibition. Fare fifty cents.

The *Hamilton Omnibus Company* run also about fifty vehicles from the principal points in the city to the Exhibition grounds. Fare fifty cents. It is estimated that the Transfer and Omnibus

companies and the hacks, cabs and coupes can transport about 50,000 people daily.

Thus it will be seen that the facilities for transporting visitors at moderate rates from any point in the city to the Exhibition gates are equal to any demand that may be made upon them.



BRYN MAWR STATION, PENNSYLVANIA RAILROAD.

With regard to the accommodations for visitors in Philadelphia, the most ample arrangements have been made. At least 150,000 visitors can be provided with comfortable quarters in Philadelphia, at moderate rates. The following is a list

of the hotels of Philadelphia, with their locations, capacity for accommodating visitors, and the prices announced by their proprietors :

Hotel.	Location.	Number of rooms.	Number that can be accom- modated.	Terms per day.
Continental.....	9th and Chestnut sts.....	500.....	1500.....	\$4.50
Girard House.....	9th and Chestnut sts	400.....	1500.....	3.50
Colonnade.....	15th and Chestnut sts....	314.....	500.....	3.50-5.00
Trans-Continental	Elm and Belmont avs....	500.....	1200.....	5.00
Globe.....	Elm and Belmont avs....	1000.....	4000.....	5.00
La Pierre.....	Broad near Chestnut st.	130.....	325.....	3.50-5.00
St. Cloud.....	Arch ab. 7th st	165.....	350.....	3.00
United States.....	42d and Columbia av. ...	325.....	600.....	4.00
Hotel Aubrey.....	33d and Walnut sts.....	400.....	3000.....	European
Atlas.....	Elm av. op. Machinery Hall.....	1500.....	3000.....	1.00-2.00
Grand Exposition.....	Girard & Lancaster avs....	1325.....	4000.....	European
Masonic Hall.....	Chestnut ab. 7th st.....	.....	1000.....	3.00
St. Stephens'.....	Chestnut ab. 10th st.....	118.....	350.....	3.50-5.00
Bingham	11th and Market sts	150.....	400.....	3.50
Merchants'.....	Fourth bel. Arch st.....	300.....	850.....	3.00
Washington.....	Chestnut ab. 7th st.....	200.....	450.....	3.00-3.50
American	Chestnut ab. 5th st.	300.....	600.....	3.00
St. Elmo.....	317 and 319 Arch st.....	225.....	500.....	2.50-3.00
Merchants' House.....	413 N. 3d st.....	90.....	300.....	European
Mansion House	621 Arch st.....	100.....	300.....	3.00-3.50
Irving House.....	915 Walnut st.....	140.....	200.....	3.00-5.00
Central Avenue.....	831 Market st.....	125.....	300.....	European
Alleghany.....	814 Market st.....	150.....	300.....	2.00-3.00
St. Denis.....	13th and Walnut sts....	.....	100.....	1.50-2.50
Arch Street House.....	1 Arch st.....	75.....	200.....	2.50-3.00
Montgomery	6th and Willow sts.....	75.....	150.....	2.50
Ridgway House.....	1 Market st.....	150.....	250.....	2.00-3.00
Revere House	923 Chestnut st.....	125.....	200.....	2.00-3.00
Commercial.....	826 Market st.....	150.....	300.....	2.00-2.50
Clarendon.....	8th bel. Chestnut st.....	50.....	150.....	1.00-2.00
Red Lion.....	472 2d st.....	125.....	250.....	2.00-2.50
Keystone.....	Broad st. opposite New Masonic Temple.....	50.....	100.....	European
St. George	Broad and Walnut sts....	125.....	300.....	5.00
Petry's.....	N. W. cor. Broad and Walnut sts.....	.....	60.....	European
West End.....	Chestnut ab. 16th st.....	90.....	180.....	"
Guy's	7th and Chestnut sts	60.....	150.....	"
Marble Terrace.....	23d and Chestnut.....	15.....	50.....	"
Eagle	227 N. 3d st.....	400.....	600.....	2.50
Bald Eagle.....	416 N. 3d st.....	75.....	175.....	1.75-2.25
Barley Sheaf.....	257 N. 2d st.....	.....	125.....	1.75-2.00
Philip Hohl's Hotel.....	Callowhill st. bel. 5th...	.....	300.....	European

Hotel.	Location.	Number of rooms.	Number that can be accom- modated.	Terms per day.
Penn Manor.....	8th & Spring Garden sts.	80.....	300.....	2.50
Sorrel Horse.....	268 N. 4th st.....	35.....	150.....	
Smedley House.....	1227 Filbert st.....	50.....	150.....	2.50
White Bear.....	5th and Race sts.....	35.....	80.....	
White Horse.....	316 N. 3d st.....	10.....	20.....	1.75-2.50
National House.....	1404 S. Penn Square....	10.....	30.....	1.50
Howard House.....	2001 Chestnut st.....	20.....	50.....	1.75-2.50
Johnson's Hotel.....	1115 Market st.....		150.....	1.75-2.50
Germania.....	2330 Market st.....		150.....	
Mercantile.....	23 S. 10th st.....		100.....	European
New Market.....	1619 Market st.....	54.....	150.....	
William Penn.....	3317 Market st.....	83.....	150.....	
Pennsylvania Farmers'.....	346 N 3d st.....	60.....	150.....	1.75-2.50
Lincoln House.....	319 N. 4th st.....	15.....	40.....	1.75-2.50
London.....	15 and 17 Darby road....	33.....	100.....	European
Zeiss' Hotel.....	820 Walnut st.....	70.....	150.....	
Markoe House.....	919 Chestnut st.....	50.....	150.....	1.50-4.00
Allen House.....	1220 Market st.....		100.....	
Black Bear.....	425 N. 3d st.....	63.....	150.....	2.00
Black Horse.....	352 N. 3d st.....	100.....	300.....	2.00
Bull's Head.....	1205 Market st.....		200.....	
Binder's Hotel.....	312 Race st.....	60.....	125.....	
Columbia House.....	111 N. Broad st.....	48.....	150.....	2.50
Clinton House.....	1608 Ridge av.....	45.....	175.....	2.00-3.00
Davis' Hotel.....	6 and 8 S. Delaware av.	50.....	200.....	2.00
Union Hotel.....	1314 Arch st.....		100.....	3.50
Fairmount Avenue Hotel.....	701 N. 4th st.....			
Tiger.....	327 Vine st.....	50.....	160.....	2.00

The coaches of the Exhibition Transfer Company run between each of the above-named hotels and the Exhibition grounds.

In addition to the hotels, Philadelphia is provided with numerous boarding-houses, in which thousands will find comfortable and cheap accommodations. *The Centennial Lodging-house Agency (Limited), of Philadelphia*, has been organized to provide visitors with a ready and expeditious means of securing board in the city. Arrangements have been made by this company with the various boarding-houses of the city to furnish accommodations at a fixed rate. The agency will have tickets on sale at all the leading railroad offices of the country, securing the purchaser comfortable accommodations at Philadelphia. Upon reaching the city the purchaser will be met on

board the train by the agents of the company, who will give the necessary information as to the location of the lodgings and the best means of reaching them, and will attend to the delivery of baggage. The office of the agency is at 1010 Walnut street.

In addition to the hotels and boarding-houses of the city, the vicinity of Philadelphia contains numerous suburban hotels and summer resorts, situated on the main lines leading direct to the Exhibition grounds. These offer a delightful place of abode to summer visitors, and will furnish accommodations at from \$3.50 to \$5 per day, with fair discounts to weekly and monthly boarders.

SUBURBAN HOTELS.

Pennsylvania Railroad.

	Capacity.
Bryn Mawr Hotel, Bryn Mawr.....	250
Baum's House, Ardmore.....	75
White Hall Hotel, Bryn Mawr.....	80
Summit Grove House, Bryn Mawr.....	80
Old Buck House, Bryn Mawr.....	40
Corbin House, Bryn Mawr.....	25
Brookfield House, Bryn Mawr.....	20
Shallioll House, Bryn Mawr.....	15
Bullock House, Bryn Mawr.....	25
Carr's Boarding-house, Rosemont.....	50
Harman's Boarding-house, Rosemont.....	40
Arthur's Boarding-house, Rosemont.....	25
Warner's Boarding-house, Rosemont.....	15
Eachus' Boarding-house, Rosemont.....	25
McKee's Boarding-house, Villa Nova.....	7
Deal's Boarding-house, Villa Nova.....	5
Marsh's Boarding-house, Wayne.....	12
Garrett's Boarding-house, Wayne.....	35
Zeiss' Boarding-house, Wayne.....	15
Jones' Boarding-house, Overbrook.....	10
Maxwell's Boarding-house, Overbrook.....	15
Smith's Boarding-house, Overbrook.....	25
Duffield's Boarding-house, Merion.....	7
Wild Wood Boarding-house, Elm.....	10
Wayne Hotel, Elm.....	30
Ardmore Hotel, Ardmore.....	30
Morgan's House, Ardmore.....	8
Wildgoss House, Haverford College.....	20
Eagle Hotel, Eagle.....	20

SUBURBAN HOTELS, PENNSYLVANIA R. R.— <i>Continued.</i>	Capacity.
Eagle Boarding-house, Eagle.....	50
Rockwood House, Eagle.....	12
Wild's House, Eagle.....	10
Cleaver's House, Reeseville.....	35
Leeds' House, Reeseville.....	10
Stetson's House, Reeseville.....	20
Lobb's House, Reeseville.....	40
Paoli Hotel, Paoli.....	12
Eavenson's House, Paoli.....	20
Coates' House, Paoli.....	12
Thompson's House, Paoli.....	25
Ogden's House, Paoli.....	15
Beale's House, Green Tree.....	25
Thomas' House, Malvern.....	12
Williams' House, Malvern.....	10
Dunwoody House, Glen Loch.....	50
Stone's House, Glen Loch.....	15
Doan's House, Glen Loch.....	20
Barry's House, Glen Loch.....	15
Oakland Hotel, Oakland.....	40
Lionville Hotel, Lionville.....	20
Lionville Boarding-house, Lionville.....	10
Pennsylvania Railroad Hotel, Downingtown.....	50
Hines' House.....	20
Roberts' House, Downingtown.....	12
Total.....	1170

West Chester Railroad.

	Capacity.
Swarthmore College, Swarthmore.....	350
White Horse, Moore's station.....	25
Lamb Hotel, near Clifton station.....	50
Cherry-Tree House, Baltimore turnpike.....	25
Wallingford station, West Chester.....	40
Heckley's House, Media.....	150
Total.....	640

North Pennsylvania Railroad.

	Capacity.
Old York Road Hotel (York road station).....	25
Lady Washington (York road station).....	20
Eagle (York road station).....	22
Sorrel Horse (York road station).....	20
Eagle, Jenkintown.....	25

SUBURBAN HOTELS, NORTH PENN. R. R.—Continued.		Capacity.
Union, Jenkintown	20	
Welden House, Abington	25	
Montgomery House, Abington	25	
Eagle House, Abington	25	
Fitzwater House, Edgehill	25	
Jarrettown House, Edgehill	25	
Fort Washington House	100	
Clifton House, Fort Washington	50	
Ambler Park Hotel	60	
William Penn Hotel, Gwynedd	100	
Franklinville Hotel, Gwynedd	50	
Lukens' Hotel, North Wales	85	
Philadelphia Hotel, North Wales	50	
Central Hotel, North Wales	50	
Junction Hotel, Lansdale	30	
American Hotel, Lansdale	30	
Sackett Hotel, Lansdale	30	
Kulpsville Hotel, Lansdale	30	
Hatfield Hotel, Hatfield	25	
Franconiaville Hotel, Hatfield	25	
Souder's Hotel, Souder's	20	
Franconia Square, Souder's	25	
County Line Hotel, Telford	20	
Telford Hotel, Telford	22	
Washington Hotel, Sellersville	25	
Sellersville Hotel, Sellersville	25	
White Horse Hotel, Sellersville	25	
Bridgetown Hotel, Sellersville	20	
Perkasie Hotel, Perkasie	20	
Bush House, Quakertown	70	
Red Lion, Quakertown	50	
Eagle Hotel, Coopersburg	40	
Baldwin Hotel, Coopersburg	35	
Total	1404	

Philadelphia, Wilmington & Baltimore Railroad.

	Capacity.
Ridley Park Hotel	150
Paschalville Hotel	75
Drove Yard Hotel, near Darby	100
Blue Bell Hotel, near Darby	30
Crum Lynn Hotel	75
Total	430

In addition to the arrangements already made, or being perfected, by our city and suburban landlords for the reception and proper entertainment of the expected throng, the country for miles around is awakening to the importance of assisting as far as possible in making the Centennial a success by contributing to the welfare and comfort of those who may overrun our built-up limits and overflow the surrounding region. Within a radius of sixty miles from Philadelphia 75,000 persons can be comfortably lodged, housed and fed at the almost numberless rural homes on the several lines of railway entering the park from all directions. The facilities afforded by these lines will permit visitors to enjoy the delights of a summer residence in the most beautiful portions of the Chester and Lancaster valleys, and yet be within easy reach of the Centennial grounds, to which they can be conveyed in almost as short a space of time as from the heart of the city. The fame of such charming country-side resorts as Bryn Mawr, Ridley Park, Media, West Chester, Chester, Haddonfield, Beverly, Burlington, Norristown, etc., etc., and their elegant and spacious hotels, is known to every Philadelphian, and is suggestive of good fare, prompt and polite attendance, pleasant company and a hearty desire on the part of the whilom host to make his guests feel perfectly at home.

The Centennial Commission, at their recent session, in order to put an end to the reports of insufficient accommodations for visitors, issued the following notice to the people of the Union:

“PHILADELPHIA, PA., May 4th, 1876.

“*To the Public:*

“The United States Centennial Commission, charged with the duty on behalf of the United States of preparing and executing a plan for holding the United States Centennial Celebration and Exhibition of 1876, notify the public:

That the hotels of Philadelphia will accommodate (above the present regular occupancy).....(guests)...	150,000
The Centennial Lodging-house Agency.....	20,000
Accommodations by relatives and friends.....	40,000
Boarding-houses.....	13,000

Patrons of Husbandry (for Grangers).....	5,000
Camp Scott (for military organizations).....	5,000
Camp in Fairmount Park (for military).	5,000
Suburban hotels.....	20,000

"There is no doubt of Philadelphia being able to entertain, if necessary, at reasonable prices, 100,000 persons, and, if further pressed, to comfortably lodge and care for 200,000 persons. Hotel prices, from \$5 to \$1.50 per day; boarding-houses, from \$1 to \$2.50 per day; Centennial Lodging-house Agency lodgings, \$1.25 per day; breakfast, supper and lodgings, \$2.50 per day.

"Patrons of Husbandry Camp at Elm Station will accommodate 5000 persons of that order at \$1.50 per day; three miles, by Pennsylvania Railroad, from Exhibition grounds. Fare, round trip, 15 cents. Address V. E. Piolett, Elm Station, Pa.

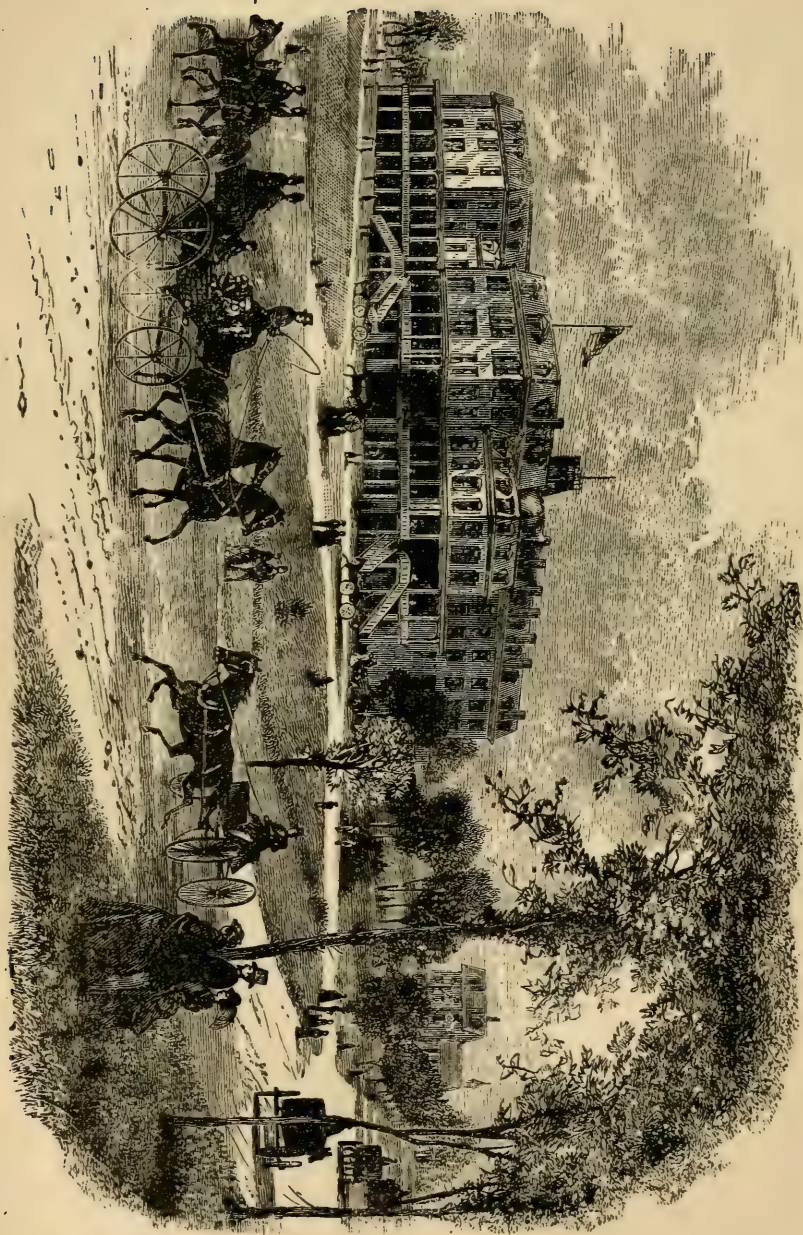
"Camping-ground for military organizations in Fairmount Park, under the laws of Pennsylvania, near Exhibition grounds. Address Adjutant-General J. W. Latta, Harrisburg.

"Camp Scott, for civic and military organizations, one mile from Exhibition; fare same as street-car rates. Horses cared for and furnished, and meals provided. Postal and telegraphic facilities. Address J. V. W. Vandemburgh, Camp Scott, Philadelphia, Pa.

"As an instance of the preparations for the accommodation of visitors, the Centennial Lodging-house Agency is mentioned. It has rooms for 20,000 guests, which can be increased to 50,000. Tickets for lodgings and meals will be sold at all important points in the country and on all passenger trains approaching Philadelphia. Persons who have purchased such tickets will be furnished a card by the train agent, assigning them to proper quarters. This agency is in the hands of competent managers. Address Wm. Hamilton, General Superintendent, No. 1010 Walnut street, Philadelphia, Pa.

"By steam and horse cars, with present facilities, 20,000 persons per hour can reach the Exhibition from any part of the city of Philadelphia. If it is necessary, 40,000 persons per hour can be moved. Fares, $6\frac{1}{4}$ and 9 cents.

BRYN MAWR HOTEL, PENNSYLVANIA RAILROAD.



“The Exhibition Transfer Company (Limited), whose agents will be on all passenger trains, transport by carriage passengers within limits of four or five miles for 50 cents each; baggage at like reduced rates. Hundreds of hackmen and omnibus companies, as well as private individuals, will perform the same service at same rates.

“One minute after the arrival of trains on all main lines entering Philadelphia, passengers can be within the Exhibition. We confidently expect that during the year the railroads of the United States will make such further reductions in their rates as will enable every person who desires to visit the Exhibition at a very small expenditure, and thus put the opportunity within reach of all. Incidentally we note as an evidence of this the fact that the Pennsylvania Railroad has ordered a train between New York and Philadelphia at the rate of \$2 for the round trip.

“The sanitary condition of Philadelphia is good. Rational amusements have been provided. Arrangements for protection from fire, thieves, etc., are as nearly perfect as it is possible in a great city. Within the Exhibition every precaution has been taken for the safety, comfort, happiness and pleasure of the public.

“The buildings of the Exhibition are in order. The Exhibition will promptly open on the 10th of May, and is an assured fact. All preparations have been made on a gigantic scale. Philadelphia and her citizens have spent millions in preparing for the reception and care of guests. There is no disposition or evidence of extortion. Increased business at usual rates is considered sufficient compensation for the vast amount of capital and labor expended. Living is as cheap, if not cheaper, than in any large city in America. Accommodations are unsurpassed. All grades of society can be accommodated. Railroad and transportation facilities are unequalled. It now needs but the presence of the public to crown with triumph the greatest International Exhibition in history, commemorating the one hundredth year of the nation's life.

“Acting for the government and the people we invite all to

aid by their presence no less than by their exhibits, and to come from all parts of the world and meet us at this assemblage of the nations of the earth.

“J. R. HAWLEY, *President*.

“For the Commission.”

The accommodations are ample for all who will come. No one need stay away for fear there is not room for him, or that he will not be comfortable. There is abundant room, as we have shown; the accommodations are excellent, and there is a hearty welcome for each and all.

Since these pages went into the printer's hands many rumors have been circulated throughout the country that the visitor to the Centennial Exhibition is sure to fall a victim to extortion of all kinds, and that his expenses while in Philadelphia will average at least ten dollars per day. This is far from being the case. Good board can be obtained for from six to eight dollars a week at a comfortable boarding-house; the admission to the Exhibition is fifty cents, and covers everything; so that one can visit Philadelphia, see the Exhibition comfortably, and have something left for amusements, for from two and a-half to three dollars per day. These prices are for comfortable but plain accommodations and fare. Those who are able can of course increase them according to their means.



CHAPTER VIII.

THE OPENING OF THE EXHIBITION.

Arrangements for the Opening—Programme Issued by the Centennial Commission—Scenes in Philadelphia on the 9th of May—The Opening Day—The Rush to the Grounds—Arrival of Visitors from Distant Points—The Gates Thrown Open—The Grand Stands—A Brilliant Scene—Arrival of the President of the United States—Wagner's Centennial March—Bishop Simpson's Prayer—Whittier's Hymn—Enthusiasm of the Multitude—Transfer of the Exhibition to the Centennial Commission—The Centennial Cantata—Address of General Hawley—President Grant Declares the Exhibition Open—The Flag Unfurled—The President's Tour Through the Buildings—The Starting of the Great Engine—Scenes in the Exhibition Grounds—Illumination of the City.

THE 10th of May, 1876, was the day appointed for the opening of the International Exhibition. On the 8th the Centennial Commission issued the following order :

UNITED STATES CENTENNIAL COMMISSION,
International Exhibition, 1876, Philadelphia.

PHILADELPHIA, May 8th, 1876.

The United States Centennial Commission announces the following orders and programme for the opening of the International Exhibition on the 10th instant.

The Commission, with the concurring counsel of the Board of Finance, instructed its officers to give formal invitations only to persons in official positions, to those officially connected with the Exhibition and to members of the press, by reason of the impossibility of discriminating among the numerous and generous supporters of the enterprise.

All the gates, except those at the east end of the Main Building, will be open to the public at 9 A. M. at the established rate of admission.

The Main Building, Memorial Hall and Machinery Hall will be reserved for guests and exhibitors until the conclusion of the ceremonies, about 1 P. M., when all restrictions will be withdrawn.

The President of the United States will be escorted to the Exhibition by Governor Hartranft, of Pennsylvania, with a division or more of troops from Pennsylvania and New Jersey.

Invited guests will enter the Main Building from the carriage concourse at the east end, or by the south-middle entrance on Elm avenue. The doors will be open to them at 9 A. M. They will pass to the platform in front of Memorial Hall through the north-middle doors of the Main Building, and should occupy their places before 10.15 A. M. All the space in the vicinity of the platform, save what may be needed for passage, will be open to the public. Seats on the platform for the ladies invited are provided, and it is expected that they will join the procession if they choose.

The orchestra of one hundred and fifty pieces and the chorus of one thousand voices will be under the direction of Theodore Thomas, assisted by Dudley Buck.

PROGRAMME.

1. 10.15 A. M.—National Airs by the Orchestra.
2. 10.30—Arrival of the President of the United States.
3. Centennial Inauguration March, by Richard Wagner.
4. Prayer, by the Right Reverend Bishop Simpson.
5. Hymn, by John Greenleaf Whittier.
Music, by John K. Paine, of Massachusetts.
Organ and Orchestral accompaniment.
6. Presentation of the Buildings to the Commission by the President of the Centennial Board of Finance.
7. Cantata, by Sidney Lanier, of Georgia.
Music, by Dudley Buck, of Connecticut.
Basso Solo, by Myron W. Whitney, of Boston.
8. Presentation of the Exhibition to the President of the United States by the President of the Centennial Commission.
9. Address by the President of the United States.
10. Unfurling of the Flag, Hallelujah Chorus, Salutes of Artillery and Ringing of the Chimes.
11. Procession through the Main Building and Machinery Hall.
12. Reception by the President of the United States in the Judges' Pavilion.

No flags or ensigns, except such as are permanently fixed in the buildings, will be displayed on the morning of the 10th until the signal be given. The organs and other musical instruments and the bells will await the same notice.

When the President of the United States declares the Exhibition open, the flag on the staff near him will be unfurled as a signal for the raising of all other flags and ensigns, the ringing of the chimes, the salute of one hundred guns on George's Hill, and the singing of the Hallelujah Chorus of Handel by the chorus, with organ and orchestral accompaniment.

Immediately upon the announcement, the Foreign Commissioners will pass into the Main Building and take places upon the general avenue opposite their respective sections.

The President of the United States, conducted by the Director-General of the Exhibition, and followed by the guests of the day, will pass through the Main Building. As the President passes the Foreign Commissioners they will join the procession, and the whole body will move to Machinery Hall.

On his way the President will be saluted by his military escort, formed in two lines between the buildings.

In Machinery Hall, when the procession shall, as far as possible, have entered the building, the President, assisted by George H. Corliss, will set in motion the great engine and the machinery connected therewith. No further formal order of procession will be required.

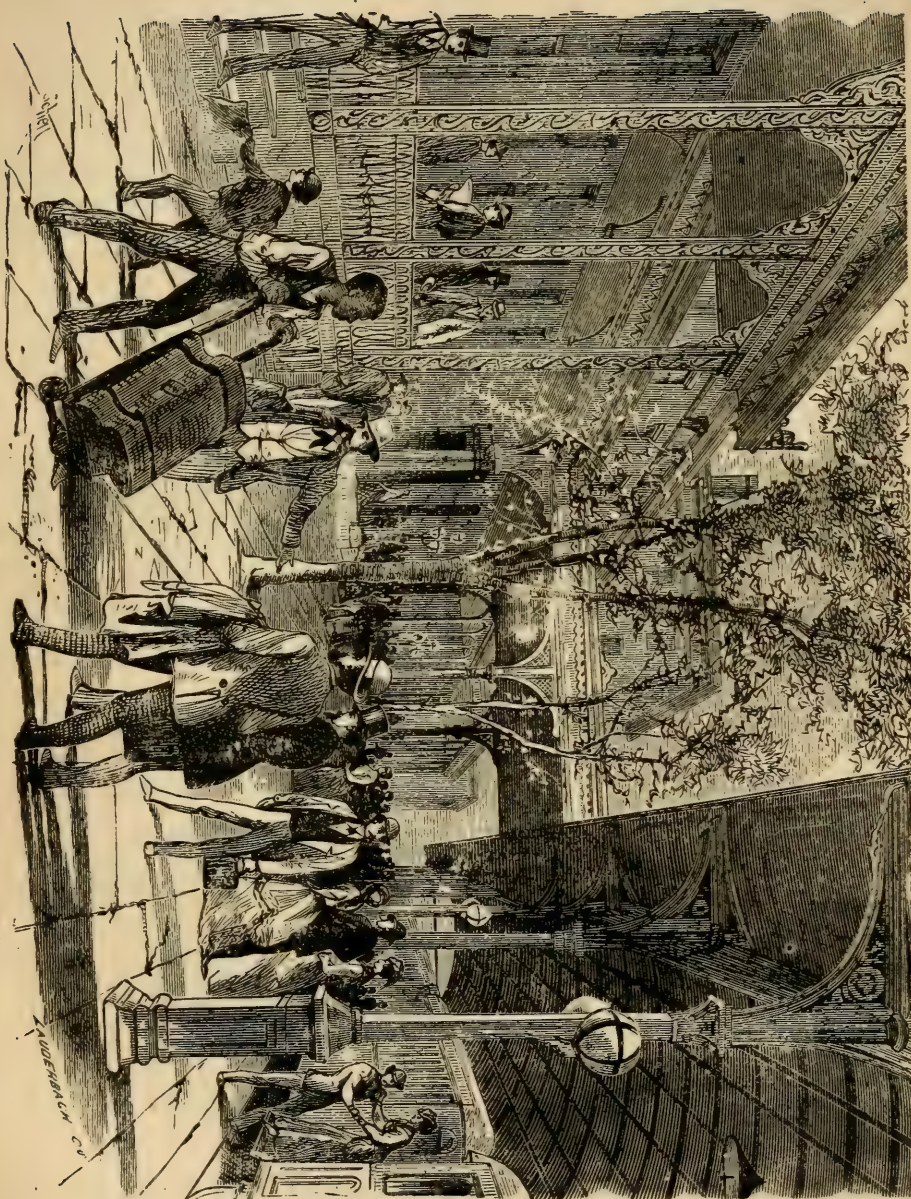
The President, and such of the guests as may choose to follow, will be escorted by way of the north main aisle of Machinery Hall to the doors of the eastern tower and to the Judges' Pavilion.

The passage in return to the Main Building will be kept for half an hour.

The President of the United States will hold a brief reception in the Judges' Pavilion.

Should the weather render it impossible to conduct the exercises in the open air, they will be held in the Main Building, and the best regulations the circumstances may permit will be communicated to the guests upon their arrival. T. B. P. Dixey

DEPOT OF THE PENNSYLVANIA RAILROAD AT ALTOONA.



is announced as Master of Ceremonies. He will wear a white sash. He will be assisted by twenty-five aids, who will wear blue sashes.

By order of the Centennial Commission.

JOSEPH R. HAWLEY, *President*.

JOHN L. CAMPBELL, *Secretary*.

Philadelphia was in a whirl of excitement for several days previous to the 10th. The hotels began to fill up as early as the 7th, and by the night of the 9th were full to overflowing. On the 9th of May a steady rain fell during the day, but in spite of this Chestnut street was alive with people eager to behold the arrivals of distinguished visitors and the various visiting military organizations that came in during the day. Great anxiety was manifested lest the storm should continue through the next day and interfere with the opening ceremonies. Towards nightfall the rain increased, and it seemed almost useless to hope for fair weather the next day.

The dawn of Wednesday, May 10th, found the rain still falling and the sky covered with heavy clouds in which no rift was visible. In spite of this, however, the city was lavishly and beautifully decorated with flags and streamers. Chestnut, Market and Walnut streets, and all the principal thoroughfares, were literally alive with flags. The stars and stripes were naturally the most prominent, but every nation of the globe was represented in the display. As the morning advanced the rain ceased, and about eight o'clock the sun shone out and soon scattered the clouds across the sky.

From an early hour in the morning the street cars, steam cars and other conveyances to the Exhibition grounds were crowded, and long before nine o'clock, the hour for opening the gates to the public, arrived, the entrances were surrounded by dense throngs eager for admission. All through the morning excursion trains from New York, Baltimore, and points along the railroads leading to Philadelphia, were arriving at the Centennial depots of the Pennsylvania and Reading Railroads and

discharging thousands of visitors to swell the crowds in the Exhibition grounds.

“Hundreds of those who waited at the gates, which were so soon to admit them to an assembled world, had not before been near the grounds since the enclosure had consisted only of a half-erected fence and the skeletons of a few of the larger buildings; and their looks of glad surprise and expressions of astonishment can easily be imagined by those who have had the good fortune to gaze upon the mighty cosmos in all its completed perfection. The picture presented even from the outside of the grounds was interesting from its peculiarity, entertaining from its novelty, and bewildering from its dazzling variety. The inconceivable expanse of the Main Building, enriched throughout all its acres of length and breadth with the most brilliant decorations, was yesterday rendered doubly magnificent by the addition of myriads of flags of all colors, shapes, sizes and nations, and from every inch of available space floated red-white-and-blue streamers. The national and international insignias over the entrances were almost covered with the grouped banners of every nation, and even the golden motto, ‘Virtue, Liberty, and Independence,’ seemed to have grown brighter since the dawn of the 10th of May. Machinery Hall was less elaborately decorated than its neighbor, and the larger banners, like those on all the other buildings, were kept furled until the formal opening of the Exhibition. There were, however, myriads of miniature flags and streamers dancing in the breeze, and the great structure in which had been collected the triumphs of the inventive ingenuity of all races presented a gala appearance well befitting the occasion. The chaste, imposing beauty of Memorial Hall was enhanced by the gracefully-intertwined colors which decked the southern façade, while far into the grounds could be seen countless thousands of furled standards and waving streamers. The arriving trains of the Pennsylvania Railroad came in quick succession, bringing thousands of passengers from the Kensington and Washington avenue stations to swell the crowd already assembled, and the handsome depot south of Machinery Hall soon became a scene of fascinating

animation as the increasing visitors hastened out of the numerous cars and poured in living streams of humanity to the still-closed entrances. The arrival of trains at the same structure from points along the main line and its connections, bringing guests from New York, Harrisburg, Pittsburgh, and intermediate stations, added new interest to the inspiring scene, and the plateau between the building and the Centennial offices became almost immediately packed with men, women and children, all waiting anxiously for the hour of nine. The Philadelphia, Wilmington & Baltimore Railroad trains also landed at the Pennsylvania depot, bringing car after car loaded with passengers. At the new depot erected by the Reading Railroad Company, at the foot of the bluff on which stands Memorial Hall, long trains of cars every few moments dashed in loaded with passengers from Broad and Callowhill streets, Ninth street and Columbia avenue, and Ninth and Green streets stations, in addition to the thousands of visitors from Germantown, Norristown, Reading, Pottsville, and more distant points. The wide platform of over fifteen hundred feet in length was continually covered with visitors, none of whom lost a moment in pressing onward to the various entrances. On these trains arrived almost all of the one thousand choristers who had so long been preparing for their important part in the opening ceremonies, and so complete had been all the arrangements that all the singers were conducted to the seats they were to occupy without material delay. As the hour of nine approached, the throngs of visitors increased still more rapidly; and from the eastern end of the Main Building to the western boundary of the passenger railroad concourse the Elm avenue tracks were for the next half hour filled with incoming and outgoing street cars, and the roadway was crowded with rapidly-driven vehicles hastening to or returning from the carriage concourse. In spite of this constant danger to pedestrians, thousands of persons of both sexes, all ages and classes abandoned the closely-packed sidewalks and made their way along the street towards the main entrance. Every moment this method of locomotion became more difficult and more dangerous, until the once quiet avenue was converted

into an indescribable confusion of restive horses, yelling drivers, moving street cars, frantic old ladies, rumbling wagons, distracted women, enthusiastic gamins and laughing children. The little folks were, of course, present in full force, and no amount of physical discomfort or personal danger seemed to



INTERIOR OF A PARLOR CAR—PENNSYLVANIA RAILROAD.

disconcert them. They were out for a grand holiday, and, on the principle of 'the more the merrier,' they seemed to have found the height of juvenile felicity in the midst of this general melee. Belmont avenue presented much the same appearance, but as on this thoroughfare everybody was hastening in the same direction there was less confusion. The thousands assembled

and assembling represented every possible class of society, every profession, trade, or vocation in the world, and almost all the nations on the globe. Hundreds of men who had come from other countries, either as exhibitors or as workmen, were mingled with the throng, and as most of them had again donned their national costumes in honor of the occasion, the moving spectacle was indeed one of rare interest. Americans and Englishmen, Germans and French, Norwegians and Turks, Irishmen and Japanese, red Indians and dark-skinned Moors, Chinamen and Mexicans, Egyptians and Arabs, were all to be found mingled with the heterogeneous collection of humanity, and here, there, and everywhere at once were heard innumerable fakirs loudly expatiating on the incomparable virtues of their articles of merchandise. A certain proportion of the visitors so closely packed together were, of course, obliged to submit to no little personal inconvenience and more or less physical discomfort; but the pleasure of being among the thousands who were to witness the final blossoming of the nation's Centennial plant, and the general excitement and ever-changing variety of the wondrous display, overcame for the time the selfishness of weak human nature, and as the few churlish entities who at first scowled at the closed gates, growled at the heat, and sullenly glared at the incoming crowds, had either moved off to more congenial quarters or been compelled to forget their acerbity by the magnetic sympathy of exultant multitudes, the scene soon became one of universal good nature, pleasant anticipation, and general rejoicing."

At nine o'clock the entrances to the grounds were opened, and the people were admitted upon payment by each one of a fifty cent note or a silver half dollar. The multitude passed in rapidly, and soon the grounds were thronged. The crowds pressed up eagerly around the stands which had been erected for the accommodation of those who were to take part in the opening ceremonies.

The site selected for the opening ceremonies was the open space between the Main Building and Memorial Hall. A platform for the Centennial authorities, the President of the United

States and other distinguished guests was erected in front of the latter building, and another, rising like an amphitheatre from the level of the terrace in front of Memorial Hall to the second row of arches in the central pavilion of the Main Building, was provided for the accommodation of the orchestra and chorus of a thousand voices which were to render the musical portion of the exercises.

The reserved places were jealously guarded by a detachment of the Centennial guard, and only persons provided with complimentary tickets were admitted to them. Every place was filled before the hour for the commencement of the ceremonies struck, and every available foot of ground without the enclosure was occupied by the public generally.

On the grand stand in front of Memorial Hall were assembled the Congress of the United States, the Governors of a number of the States, officers of the army and navy of the United States, the Emperor and Empress of Brazil, the Ministers from foreign countries, and a large number of distinguished persons from our own and other lands. The display of uniforms was brilliant, and the rich toilettes of the ladies on the stand gave to the scene a pleasing and picturesque aspect. The Emperor and Empress of Brazil were given seats on the central platform on the right of the chair reserved for the President of the United States.

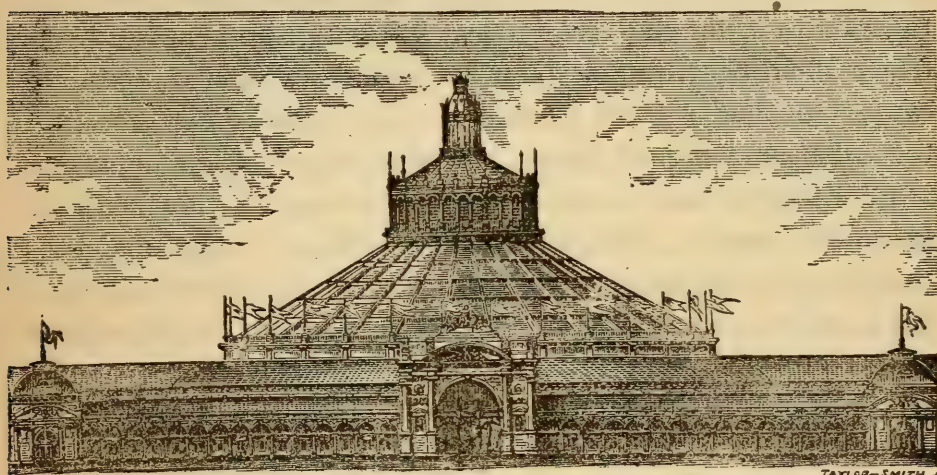
The decorations of the grand and orchestra stands, which were located directly opposite each other, were of the simplest description, consisting only of the colors of the United States and the various European nations. Hundreds of flags fluttered from the pinnacles of the Exhibition buildings, but the larger flagstaffs were conspicuously bare.

As the distinguished guests were seated, there was a slight commotion on the orchestra stand, and immediately Theodore Thomas took his place at the conductor's desk, and waved his baton as a signal for the music to begin. Under the leadership of this master the orchestra rendered in fine style the national airs of all the nations represented in the exhibition.

"After having stated," says the *Philadelphia Press*, in its admirable account of the opening ceremonies, "that the immense

multitude was composed of representatives of all civilized countries on the globe, it is scarcely necessary to describe the effect of this succession of hymns which, in times past, had roused whole nations to activity, called to the defence of their country millions of brave men, sustained the drooping energies of soldiers on forced marches, stimulated them in battle, comforted the dying, infused new courage after defeat, and celebrated the most brilliant victories—national hymns which had been learned in childhood, loved in youth, and venerated in old age. Nor need it be added that as the first familiar strains of each air were touched by the orchestra more than one face became illuminated with looks of joyous recognition, and more than one mind reverted to times and scenes when the simple air sent the warm blood thrilling through his veins and made him worship the country he had already learned to love. The second selection, the Austrian national hymn, has long been familiar to citizens of all European and American governments, as it is much used in church music. But how widely different must have been the thoughts suggested by its sweet melody to different auditors! To English and American citizens it recalled, not some great national occasion, but the holy sanctuary where on the concordant voices of devout worshippers pæans of praise were wafted heavenward; to the Austrians the same strains doubtless brought vividly to mind their country's trials, dangers, and triumphs, and perhaps to not a few its harmonies were overpowered by the memory of terrible conflicts with their country's foes, long hours of almost mortal suffering, rewarded at last by the consciousness of having been one of the few who bravely fought and yet lived to celebrate a glorious victory. When the Brazilian national hymn was played both the emperor and empress gave to the orchestra a look of glad surprise in recognition of the compliment, and then, as the musicians glided into the stirring 'Marseillaise,' Americans and Frenchmen clasped hands, in spirit if not in reality, for this peerless national hymn is almost equally loved in both countries. Its martial measure and exciting strains are always infectious, but when played as the Thomas orchestra yesterday performed it the effect was irresistible.

Among the throng were thousands who had either come direct from France or had been brought up in the land of the 'Marseillaise,' and it was easy to see that, as the old familiar summons to the defence of Liberty was being grandly repeated, hundreds of the impulsive Frenchmen within sound of the orchestra would have danced for joy had there been room enough. But there was not, and the lovers of the noble hymn were compelled to content themselves with waving their hats, shouting 'Vive la France,' and looking volumes. The Germans who had been anxiously waiting for the 'Wacht am Rhine' were surprised though not disappointed when the familiar melody of 'Was ist



CENTRAL DOME, VIENNA EXPOSITION BUILDING.

des Deutschen Vaterland' reached their ears, and the beaming faces of hundreds who years and years ago had heard the same air sung as a lullaby by the long-silenced lips of a hallowed mother told how sacred the beautiful air had become. Grand old 'Hail Columbia,' of course, met with the heartiest possible reception, and for the first time during the waiting hour the pressing, surging mass of humanity ceased their efforts to push their way still further forward, and stood silent and motionless, enjoying to the utmost the life of recollections and flood of emotions which this hymn had so suddenly called into new existence."

As the music ceased, a loud cheer rising from the entrance to

the grounds in the rear of Memorial Hall, proclaimed the arrival of the President of the United States and his Cabinet. The President was escorted from the city to the Exhibition by a division of 4000 troops, made up of the volunteers of the city and visiting detachments from other parts of the Union. The President was received with considerable enthusiasm as he reached the grand stand, and at once took the place reserved for him. He was followed by the members of the Cabinet and the distinguished persons who had come from the city with him.

As the President, after acknowledging the greeting of the multitude, took his seat, there burst from the orchestra at a sign from Theodore Thomas the first strains of the grand *Centennial Inauguration March* composed for the occasion by Richard Wagner. This magnificent composition was rendered with a fervency and thoroughness which only a leader and an orchestra who understand and love the great composer as perfectly as do Theodore Thomas and his band, could impart to it. It was listened to with breathless attention by the vast throng of over 100,000 people, and at the conclusion was greeted with loud and enthusiastic cheers.

The music had scarcely ceased when Bishop Simpson, of the Methodist Episcopal Church, advanced to the front of the stand, and lifting up his hands, offered up the following impressive prayer :

“Almighty and everlasting God, our heavenly Father. Heaven is thy throne and the earth is thy footstool. Before thy majesty and holiness the angels veil their faces, and the spirits of the just made perfect bow in humble adoration. Thou art the creator of all things, the preserver of all that exist, whether they be thrones or dominions, or principalities or powers. The minute and the vast, atoms and worlds, alike attest the ubiquity of thy presence and the omnipotence of thy sway.

“Thou alone art the sovereign ruler of nations. Thou raiseth up one and casteth down another, and thou givest the kingdoms of the world to whomsoever thou wilt. The past with all its records is the unfolding of thy counsels and the

realization of thy grand designs. We hail thee as our rightful ruler, the King eternal, immortal, and invisible, the only true God, blessed forever more.

“We come on this glad day, O thou God of our fathers, into these courts with thanksgiving and into these gates with praise. We bless thee for thy wonderful goodness in the past, for the land which thou gavest to our fathers, a land veiled from the ages, from the ancient world, but revealed in the fulness of time to thy chosen people, whom thou didst lead by thine own right hand through the billows of the deep, to a land of vast extent, of towering mountains and broad plains, of unnumbered products and of untold treasures.

“We thank thee for the fathers of our country, men of mind and of might, who endured privations and sacrifices, who braved multiplied dangers rather than defile their consciences or be untrue to their God, men who laid on the broad foundations of truth and justice the grand structure of civil freedom.

“We praise thee for the closing century, for the founders of the republic, for the immortal Washington and his grand associates, for the wisdom with which they planned, and the firmness and heroism, which, under thy blessing, led them to triumphant success. Thou wast their shield in hours of danger, their pillar of cloud by day, and their pillar of fire by night. May we, their sons, walk in their footsteps and imitate their virtues.

“We thank thee for social and national prosperity and progress, for valuable discoveries and multiplied inventions, for labor-saving machinery relieving the toiling masses, for schools, free as the morning light for the millions of the rising generation, for books and periodicals scattered like leaves of autumn over the land, for art and science, for freedom to worship God according to the dictates of conscience, for a Church unfettered by the trammels of State.

“Bless, we pray thee, the President of the United States and his constitutional advisers, the Judges of the Supreme Court, the Senators and Representatives in Congress, the Governors of our several commonwealths, the officers of the army and navy, and all who are in official position throughout our land. Guide

them, we pray thee, with counsels of wisdom, and may they ever rule in righteousness. We ask thy blessing to rest upon the President and members of the Centennial Commission, and upon those associated with them in the various departments, who have labored long and earnestly amidst anxieties and difficulties for the success of this enterprise.

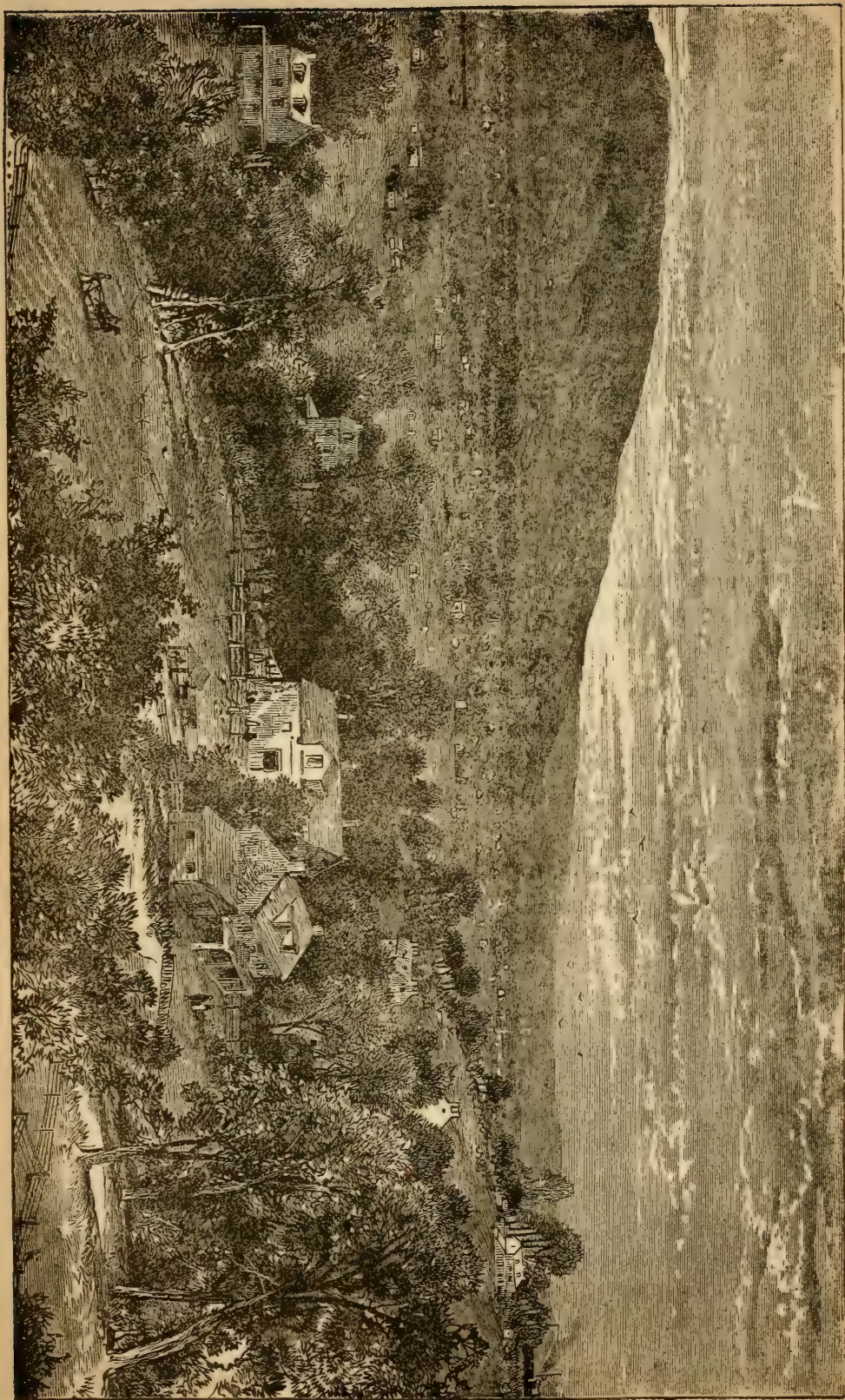
“May thy special blessing, O thou God of all the nations of the earth, rest upon our national guests, our visitors from distant lands. We welcome them to our shores, and we rejoice in their presence among us, whether they represent thrones, or culture, or research, or whether they come to exhibit the triumphs of genius and art, in the development of industry and in the progress of civilization. Preserve thou them, we beseech thee, in health and safety, and in due time may they be welcomed by loved ones again to their own, their native lands.

“Let thy blessing rest richly on this Centennial celebration. May the lives and health of all interested be precious in thy sight. Preside in its assemblies. Grant that this association in effort may bind more closely together every part of our great republic, so that our Union may be perpetual and indissoluble. Let its influence draw the nations of earth into a happier unity. Hereafter, we pray thee, may all disputed questions be settled by arbitration, and not by the sword, and may wars forever cease among the sons of men.

“May the new century be better than the past—more radiant with the light of true philosophy, warmer with the emanations of a world-wide sympathy. May capital, genius and labor be freed from all antagonism by the establishment and application of such principles of justice and equity as shall reconcile diversified interests and bind in imperishable bands all parts of society.

“We pray thy benediction especially on the women of America, who for the first time in the history of our race take so conspicuous a place in a national celebration. May the light of their intelligence, purity and enterprise shed its beams afar, until, in distant lands, their sisters may realize the beauty and glory of Christian freedom and elevation. We beseech thee,

CHESTER VALLEY, NEAR PHILADELPHIA, AS SEEN FROM THE PENNSYLVANIA RAILROAD.



Almighty Father, that our beloved republic may be strengthened in every element of true greatness, until her mission is accomplished by presenting to the world an illustration of the happiness of a free people, with a free church, in a free State, under laws of their own enactment and under rulers of their own selection, acknowledging supreme allegiance only to the King of kings and Lord of lords. And as thou didst give to one of its illustrious sons first to draw experimentally the electric spark from heaven, which has since girdled the globe in its celestial whispers of 'Glory to God in the highest, peace on earth and good will to men,' so to latest time may the mission of America, under Divine inspiration, be one of affection, brotherhood and love for all our race. And may the coming centuries be filled with the glory of our Christian civilization.

"And unto thee, our Father, through Him whose life is the light of men, will we ascribe glory and praise, now and forever. Amen."

At the conclusion of the prayer Whittier's *Centennial Hymn*, a fine, vigorous production, worthy of the genius of the poet, was sung by the chorus of one thousand voices, accompanied by the orchestra and the great organ erected at the north end of the central transept of the Main Building.

The music for this poem was written by Mr. John K. Paine, of Massachusetts, and as the united voices rendered it the composition was exceedingly beautiful, though not of striking individuality. The sweet melody was accompanied by simple harmonies, which rolled forth upon the air like the gently-moving billows of old ocean in her most peaceful mood; and, as the sacred strains were heard, countless thousands, who had previously regarded the occasion as a grand day of joy and mirth, seemed to fully realize that the crowning hours of a century of independence had also a serious meaning, which should not be overlooked. The voices of the chorus were particularly full and strong in every bar, and some of the higher

chords could be distinctly heard for a great distance. The hymn was as follows :

Our fathers' God ! from out whose hand
The centuries fall like grains of sand,
We meet to-day, united, free,
And loyal to our land and thee,
To thank thee for the era done,
And trust thee for the opening one.

Here, where of old, by thy design,
The fathers spake that word of thine,
Whose echo is the glad refrain
Of rended bolt and falling chain,
To grace our festal time from all
The zones of earth our guests we call.

Be with us while the New World greets
The Old World thronging all its streets,
Unveiling all the triumphs won
By art or toil beneath the sun ;
And unto common good ordain
This rivalry of hand and brain.

Thou who hast here in concord furled
The war-flags of a gathered world,
Beneath our western skies fulfil
The Orient's mission of good will ;
And, freighted with Love's golden fleece,
Send back the Argonauts of peace.

For art and labor met in truce,
For beauty made the bride of use,
We thank thee, while withal we crave
The austere virtues, strong to save ;
The honor, proof to place or gold ;
The manhood, never bought or sold !

Oh ! make thou us, through centuries long,
In peace secure, in justice strong ;
Around our gift of freedom draw
The safeguards of thy righteous law,
And, cast in some diviner mould,
Let the new cycle shame the old !

The hymn being ended, Mr. John Welsh, President of the Board of Finance, rose from his place by General Hawley, for

the purpose of formally presenting the Exhibition buildings and grounds to the United States Centennial Commission. His appearance was the signal for long continued plaudits of enthusiasm. To many of the great audience this was the first opportunity that had been vouchsafed to them to behold the man whose genius, pre-eminent above that of many of his compeers, has made his name a household word throughout America, and through whose unfaltering and unselfish devotion the Exhibition has been made not only a reality, but an assured success, and this without even the suspicion of a dishonest or improper act on the part of a single one of its officials. Cheer upon cheer rent the air in grateful recognition of the worth and services of one who has done so much for Philadelphia and Philadelphia interests. When order had been partially restored, Mr. Welsh proceeded as follows :

“MR. PRESIDENT AND GENTLEMEN OF THE UNITED STATES CENTENNIAL COMMISSION: In the presence of the government of the United States and of the several distinguished bodies by whom we are surrounded, and in behalf of the Centennial Board of Finance, I greet you.

“In readiness at the appointed time, I have the honor to announce to you that, under your supervision and in accordance with the plans fixed and established by you, we have erected the buildings belonging to us, and have made all the arrangements devolving on us necessary for the opening of the ‘International Exhibition.’ We hereby now formally appropriate them for their intended occupation, and we hold ourselves ready to make all further arrangements that may be needed for carrying into full and complete effect all the requirements of the acts of Congress relating to the Exhibition.

“For a like purpose we also appropriate the buildings belonging to the State of Pennsylvania and the city of Philadelphia, erected by us at their bidding, to wit: Memorial Hall, Machinery Hall and Horticultural Hall. These and other substantial offerings stand as the evidence of their patriotic co-

operation. To the United States of America, through Congress, we are indebted for the aid which crowned our success.

"In addition to those to which I have just referred, there are other beautiful and convenient edifices which have been erected by the representatives of foreign nations, by State authority and by individuals, which are also devoted to the purposes of the Exhibition.

"LADIES AND GENTLEMEN: If in the past we have met with disappointments, difficulties and trials, they have been overcome by a consciousness that no sacrifice can be too great which is made to honor the memories of those who brought our nation into being. This commemoration of the events of 1776 excites our present gratitude. The assemblage here to-day of so many foreign representatives uniting with us in this reverential tribute is our reward.

"We congratulate you on the occurrence of this day. Many of the nations have gathered here in peaceful competition. Each may profit by the association. This Exhibition is but a school; the more thoroughly its lessons are learned the greater will be the gain, and, when it shall have closed, if by that study the nations engaged in it shall have learned respect for each other, then it may be hoped that veneration for Him who rules on high will become universal, and the angels' song once more be heard:

"Glory to God in the highest,
And on earth peace, good will towards men."

Upon the conclusion of Mr. Welsh's address General Joseph R. Hawley, the President of the United States Centennial Commission, replied as follows in behalf of the Commission:

"MR. PRESIDENT OF THE CENTENNIAL BOARD OF FINANCE: The Centennial Commission accepts the trust with grateful and fraternal acknowledgment of the great services of the Board of Finance."

The chorus then sang, with orchestral accompaniment, the following *Centennial Cantata*, written by Sidney Lanier, of

Georgia. The music, which is singularly beautiful, was composed by Mr. Dudley Buck, of Connecticut :

From this hundred-terraced height,
Sight more large with nobler light
Ranges down yon towering years:
Humbler smiles and lordlier tears
Shine and fall, shine and fall,
While old voices rise and call
Yonder where the to-and-fro,
Weltering of my Long-Ago,
Moves about the moveless base,
Far below my resting-place.

Mayflower, Mayflower, slowly hither flying,
Trembling, Westward, o'er yon balking sea,
Hearts within, Farewell, dear England, sighing,
Winds without but dear in vain replying,
Gray-lipp'd waves about thee shouted, crying,
"No! It shall not be!"

Jamestown, out of thee—
Plymouth, thee—thee, Albany—
Winter cries: "Ye freeze; away!"
Fever cries: "Ye burn; away!"
Hunger cries: "Ye starve; away!"
Vengeance cries: "Your graves shall stay!"

Then old Shapes and Masks of Things,
Framed like Faiths or clothed like Kings—
Ghosts of Goods once fleshed and fair,
Grown foul Bads in alien air—
War, and his most noisy lords,
Tongued with lithe and poisoned swords—

Error, Terror, Rage and Crime,
All in a windy night of time
Cried to me from land and sea:
"No! Thou shalt not be!"

Hark!

Huguenots whispering *yea* in the dark;
Puritans answering *yea* in the dark!
Yea, like an arrow shot true to his mark,
Darts through the tyrannous heart of Denial,
Patience and Labor and solemn-souled Trial,
Foiled, still beginning;
Soiled, but not sinning;

Toil through the stertorous death of the Night;
 Toil when wild brother-wars new-dark the Light;
 Toil and forgive and kiss o'er and replight.

Now praise to God's oft-granted grace;
 Now praise to man's undaunted face.
 Despite the land, despite the sea,
 I was, I am, and I shall be—
 How long, Good Angel, oh! how long?
 Sing me from Heaven a man's own song!

Long as thine Art shall love true love;
 Long as thy Science truth shall know;
 Long as thine Eagle harms no Dove;
 Long as thy Law by law shall grow;
 Long as thy God is God above,
 Thy brother every man below,
 So long, dear Land of all my love,
 Thy name shall shine, thy fame shall glow!

O Music! from this height of time my Word unfold;
 In thy large signals all men's hearts Man's Heart behold;
 Mid-heaven unroll thy chords as friendly flags unfurled,
 And wave the world's best lover's welcome to the world.

The bass solo, commencing "Long as thine Art shall love true love," was rendered in superb style by Myron J. Whitney, of Boston, and was enthusiastically encored. At the conclusion of the Cantata Mr. Buck was loudly called for, and upon appearing at one of the windows of the Main Building was given three hearty cheers in acknowledgment of his work.

Silence being restored, General Joseph R. Hawley, President of the Centennial Commission, rose, and turning to the President of the United States, formally presented the Exhibition to him, in the following words:

"MR. PRESIDENT—Five years ago the President of the United States declared it fitting that 'the completion of the first century of our national existence should be commemorated by an exhibition of the natural resources of the country and their development, and of its progress in those arts which benefit mankind,' and ordered that an Exhibition of American and foreign arts, products, and manufactures should be held, under the auspices of the government of the United States, in the

city of Philadelphia, in the year 1876. To put into effect the several laws relating to the Exhibition, the United States Centennial Commission was constituted, composed of two Commissioners from each State and Territory, nominated by their respective Governors, and appointed by the President. The Congress also created our auxiliary and associate corporation, the Centennial Board of Finance, whose unexpectedly heavy burdens have been nobly borne. A remarkable and prolonged disturbance of the finances and industries of the country has greatly magnified the task, but we hope for a favorable judgment of the degree of success attained. July 4th, 1873, this ground was dedicated to its present uses. Twenty-one months ago this Memorial Hall was begun. All the other one hundred and eighty buildings within the enclosure have been erected within twelve months. All the buildings embraced in the plans of the Commission itself are finished. The demands of applicants exceeded the space, and strenuous and continuous efforts have been made to get every exhibit ready in time.

“By general consent the Exhibition is appropriately held in the City of Brotherly Love. Yonder, almost within your view, stands the venerated edifice wherein occurred the event this work is designed to commemorate, and the hall in which the first Continental Congress assembled. Within the present limits of this great park were the homes of eminent patriots of that era, where Washington and his associates received generous hospitality and able counsel. You have observed the surpassing beauty of the situation placed at our disposal. In harmony with all this fitness is the liberal support given the enterprise by the State, city, and the people individually.

“In the name of the United States, you extended a respectful and cordial invitation to the governments of other nations to be represented and to participate in this Exhibition. You know the very acceptable terms in which they responded, from even the most distant regions. Their Commissioners are here, and you will soon see with what energy and brilliancy they have entered upon this friendly competition in the arts of peace.

"It has been the fervent hope of the Commission that, during this festival year, the people from all States and sections, of all creeds and churches, all parties and classes, burying all resentments, would come up together to this birthplace of our liberties, to study the evidence of our resources; to measure the progress of an hundred years, and to examine to our profit the wonderful products of other lands; but especially to join hands in perfect fraternity, and promise the God of our fathers that the new century shall surpass the old in the true glories of civilization. And furthermore, that from the association here of welcome visitors from all nations, there may result not alone great benefits to invention, manufactures, agriculture, trade and commerce, but also stronger international friendships and more lasting peace.

"Thus reporting to you, Mr. President, under the laws of the government and the usage of similar occasions, in the name of the United States Centennial Commission, I present to your view the International Exhibition of 1876."

Immediately following General Hawley's speech President Grant discharged the last formal yet simple and dignified act of the ceremonies by making proclamation of the eventful fact of the opening of the International Exhibition. The remarks of the President, like all the other speeches of the day, were in writing, and at intervals were applauded with great spirit. The following is the address:

"MY COUNTRYMEN—It has been thought appropriate upon this Centennial occasion to bring together in Philadelphia, for popular inspection, specimens of our attainments in the industrial and fine arts, and in literature, science and philosophy, as well as in the great business of agriculture and of commerce. That we may the more thoroughly appreciate the excellencies and deficiencies of our achievements, and also give emphatic expression to our earnest desire to cultivate the friendship of our fellow-members of this great family of nations, the enlightened agricultural, commercial, and manufacturing people of the world have been invited to send hither corresponding specimens of their skill to exhibit on equal terms in friendly com-



SCENE ON THE SCHUYLKILL, NEAR PHILADELPHIA.

petition with our own. To this invitation they have generously responded. For so doing we render them our hearty thanks.

"The beauty and utility of the contributions will this day be submitted to your inspection by the managers of this Exhibition. We are glad to know that a view of specimens of the skill of all nations will afford to you unalloyed pleasure, as well as yield to you a valuable practical knowledge of so many of the remarkable results of the wonderful skill existing in enlightened communities.

"One hundred years ago our country was new and but partially settled. Our necessities have compelled us to chiefly expend our means and time in felling forests, subduing prairies, building dwellings, factories, ships, docks, warehouses, roads, canals, machinery, etc., etc. Most of our schools, churches, libraries, and asylums have been established within an hundred years. Burdened by these great primal works of necessity, which could not be delayed, we yet have done what this Exhibition will show in the direction of rivalling older and more advanced nations in law, medicine, and theology; in science, literature, philosophy, and the fine arts. Whilst proud of what we have done, we regret that we have not done more. Our achievements have been great enough, however, to make it easy for our people to acknowledge superior merit wherever found.

"And now, fellow-citizens, I hope a careful examination of what is about to be exhibited to you will not only inspire you with a profound respect for the skill and taste of our friends from other nations, but also satisfy you with the attainments made by our own people during the past one hundred years. I invoke your generous co-operation with the worthy Commissioners to secure a brilliant success to this International Exhibition, and to make the stay of our foreign visitors—to whom we extend a hearty welcome—both profitable and pleasant to them.

"I declare the International Exhibition now open."

As the President declared the Exhibition open, General Hawley gave the signal, and the flag of the United States was run up to the staff rising from the north transept of the Main

Building. This was the signal for the unfurling of the national and foreign flags on all the buildings, and was greeted with deafening cheers from the assembled multitude. At the same moment the chorus, the orchestra and great organ in the Main Building burst forth into the grand strains of Handel's "Hallelujah Chorus," rendering it with fine effect. As the music died away, the merry peals of the chimes of Machinery Hall were heard, and a salute of one hundred guns was thundered from George's Hill.

The invited guests, to the number of 4000, were now marshalled in line by Mr. T. B. P. Dixey, Master of Ceremonies, and passing from Memorial Hall, through lines of troops, entered the Main Building. The following was the

ORDER OF PROCESSION.

The President of the United States, and Alfred T. Goshorn, Director-General.

The Chief-Justice of the United States.

The President of the Senate.

The Speaker of the House of Representatives.

Joseph R. Hawley, President of the United States Centennial Commission.

John Welsh, President of the Centennial Board of Finance.

Daniel J. Morrell, Chairman of the Executive Committee of the Commission.

John L. Campbell, Secretary of the Commission.

Frederick Fraley, Secretary of the Board of Finance.

The Cabinet.

The Supreme Court of the United States.

The Diplomatic Corps.

The United States Centennial Commission.

Chiefs of Bureaus of Administration.

The Centennial Board of Finance.

Henry Pettit and Joseph M. Wilson, Engineers and Architects of Main Building and Machinery Hall.

H. J. Schwarzmann, Architect of Memorial Hall and Horticultural Hall.

James H. Windrim, Architect of Agricultural Hall and United States Government Building.

Richard J. Dobbins, Contractor Main Building and Memorial Hall.

Philip Quigley, Contractor Machinery Hall and Agricultural Hall.

Aaron Doane, Contractor Government Building.

The Board of the United States Executive Department.

The Women's Centennial Executive Committee.

The Fairmount Park Commission.

The Governors of the States and Territories.

The Senate of the United States.

- The House of Representatives.
- The General of the Army and Staff.
- The Admiral of the Navy and Staff.
- The Lieutenant-General of the Army and Staff.
- The Vice-Admiral of the Navy and Staff.
- The General Officers of the Army and Staffs.
- The Rear-Admirals and Commodores of the Navy and Staffs.
- Officers of the Army and Navy.
- Military and Naval Officers of Foreign Governments.
- Consuls-General and Consuls of Foreign Governments.
- Judges of United States Courts and Officers of the United States Executive Bureaus.
- Officers of the United States Coast Survey.
- Officers of the Naval Observatory.
- Officers of the Smithsonian Institute.
- The Board of Judges of Awards of the Exhibition.
- The Supreme Court of Pennsylvania.
- The Legislature of Pennsylvania.
- The Judiciary of Pennsylvania.
- The Board of State Supervisors of Pennsylvania.
- The State Boards of Pennsylvania.
- The Mayor of Philadelphia.
- The Mayors of Cities.
- The Select and Common Councils of Philadelphia.
- The State Centennial Boards.
- The Women's Centennial Committees.
- The Advisory and Co-operating Committees and Boards of the Commission.
- International Regatta Committees, and Committee of the National Rifle Association.
- Officers of the City Departments of Philadelphia.
- The Foreign Commissioners of the Exhibition successively took positions immediately after the Diplomatic Corps, as the latter passed the Foreign Sections in the Main Building.

The procession passed through the Main Building, and through the lines of troops which kept clear the passage to the Machinery Hall. Entering the latter edifice, escorted by the Philadelphia City Troop as a guard of honor, the President of the United States and the Emperor of Brazil ascended to the platform of the great Corliss Engine, where Mr. George H. Corliss, a Commissioner from Rhode Island and the inventor and constructor of the engine, received them, and instructed them how to turn the wheels of shining steel that were to wake the engine into life. When all the guests had assembled around

the platform, the President and the Emperor took their positions at the starting wheels. A sharp wave of the hand from Mr. Corliss gave the signal, and at twenty minutes past one o'clock P. M., the wheels were turned, and the great engine began to move slowly and steadily. In an instant the countless wheels and bands connected with it started on their rounds, and Machinery Hall was alive with motion.

The crowd in the hall burst into loud and prolonged cheering. A sort of informal reception was held on the platform by President Grant, but it was soon cut short, as the Presidential party, worn out by the fatigues of the day, departed for the city, omitting the reception at the Judges' Pavilion, the last feature in the programme.

The doors of the various Exhibition buildings were at once thrown open to the public, and the halls were soon filled, and remained thronged throughout the day by sight-seers. On all sides were heard exclamations of wonder and delight. Few had imagined the Exhibition either so extensive or so grand an affair, and all were delighted.

The Exhibition was now an accomplished fact. The hopes of its friends were more than realized. The criticisms of its enemies were silenced.

At night the city was brilliantly illuminated in honor of the opening, and the principal streets were thronged with sight-seers to an extent which made them almost impassable until near midnight.

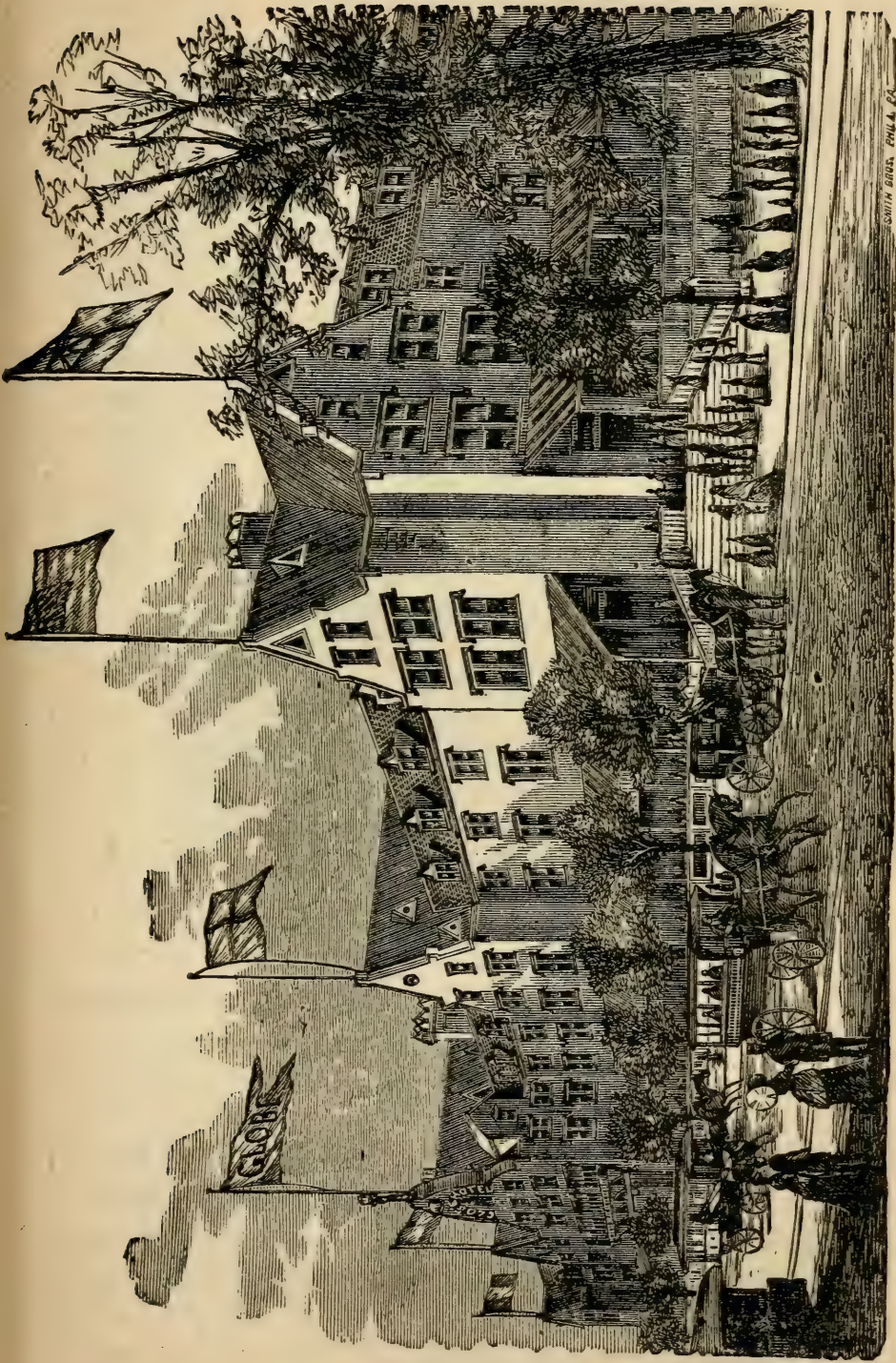
CHAPTER IX.

WITHOUT THE GROUNDS.

Rapid Growth of the Centennial Town—The Transcontinental and Globe Hotels—The United States—The Grand Exposition—The Panorama—Sights and Scenes on Elm Avenue—The Cheap Hotels—The Beer-Gardens—The Carriage Sheds—The Cheap Museums—The Oil Wells—The Street Car Concourse—A Busy Scene—Centennial Depot of the Pennsylvania Railroad—Belmont Avenue—Appearance of the Street—The Largest Soda Fountain in the World—The Restaurants—The Tropical Garden—A Delightful Resort—George's Hill—Belmont—The Steamboat Landing—Centennial Depot of the Reading Railroad.

WHEN the Exhibition buildings were begun, the portion of the city which lies south of Elm avenue, and along Lancaster avenue, was an open field, with scarcely a structure upon it. It is now a busy and thriving town, having an interest quite apart from that of the great city on the outskirts of which it lies, and drawing its life solely from the Centennial Exhibition. It consists of a multitude of structures of brick and wood that have sprung up along the approaches to the Exhibition, and which present a scene almost as picturesque and as animated as that within the enclosure.

At the intersection of Belmont and Elm avenues, opposite the main entrance to the Exhibition grounds, is the *Transcontinental Hotel*, a handsome edifice of brick, built in the most substantial manner, and triangular in shape. It is five stories in height, including a mansard roof, with a front of 297 feet on Elm avenue, and one of 181 feet on Belmont avenue. The three sides enclose a spacious courtyard, giving to each room an abundance of light and air. It contains 500 rooms, with accommodations for 1200 guests, which number can be increased to 1500 in case of necessity. The view of the Centennial grounds



SMITH BROS. PHILA. PA.

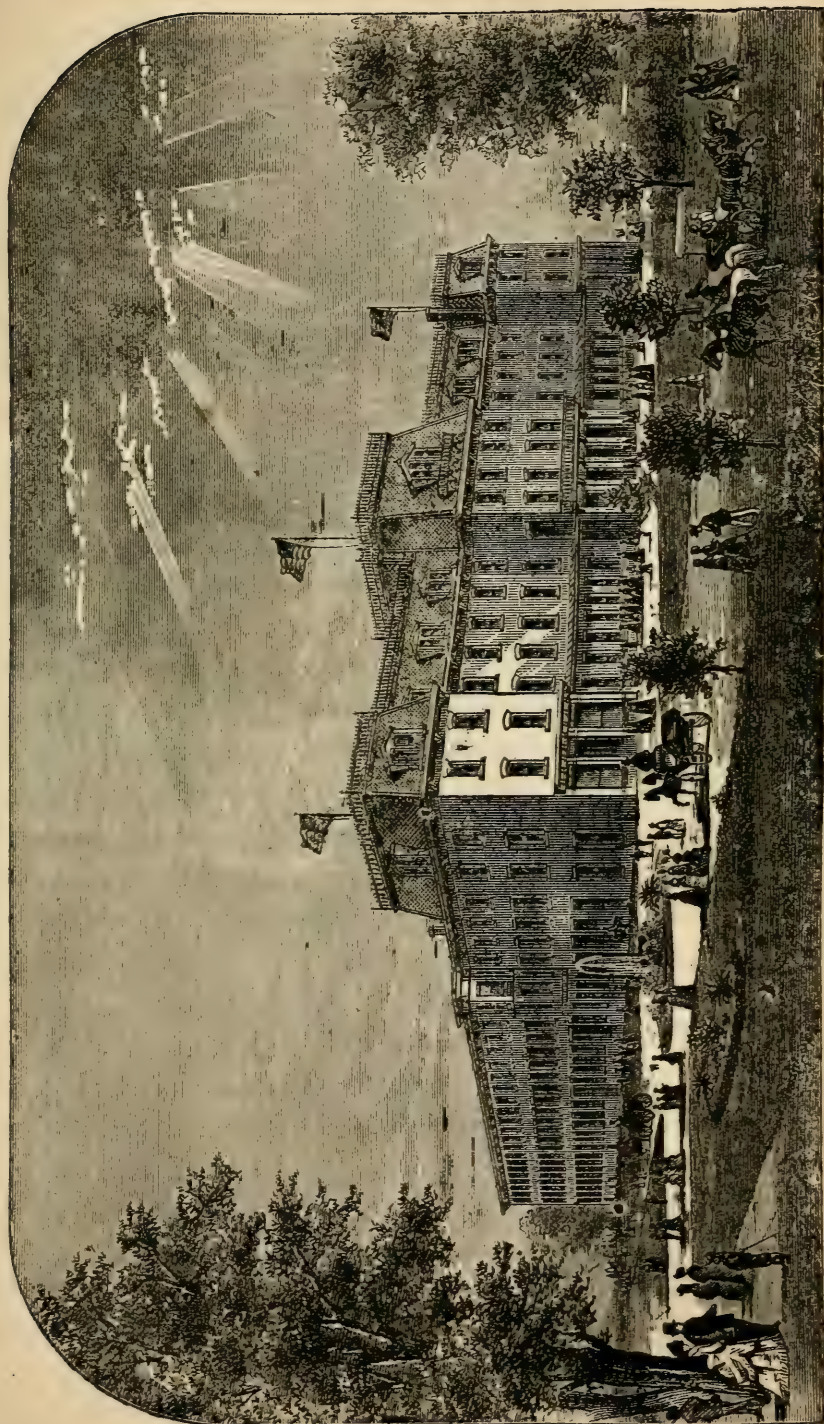
THE GLOBE HOTEL, OPPOSITE ENTRANCE TO THE MAIN BUILDING.

from any portion of it above the second story is excelled only by that from the summit of the towers of its gigantic neighbor, the Main Exhibition Building, or from the Belmont observatory. The cars of the Chestnut & Walnut, West Philadelphia, Race & Vine, and Girard Avenue Passenger Railway lines run directly to its doors, while the depot of the Pennsylvania Railroad is within less than a stone's throw. These are advantages which it possesses in common with the Globe. It was built by R. J. Dobbins, the well-known contractor, who erected the Main Exhibition Building and Memorial Hall, and who is one of the stockholders of the hotel. The fact that its management is con-



TRANSCONTINENTAL HOTEL, OPPOSITE MAIN BUILDING.

ducted by Messrs. J. E. Kingsley & Co., of the Continental, is sufficient to warrant in this new quarter that success which has ever deservedly attended those famous managers. Built and furnished at a cost of over \$250,000, nothing has been left undone in the hotel that could contribute to the perfect satisfaction of patrons of the highest class. The business office, public parlors, bar-room, kitchens, laundries, reading-rooms and dining-rooms are models in themselves, and an important feature is a great restaurant, independent from the dining-room, and conducted on the same plan as the restaurant at the Continental—in fact, the two hotels are managed and conducted throughout after the one plan.



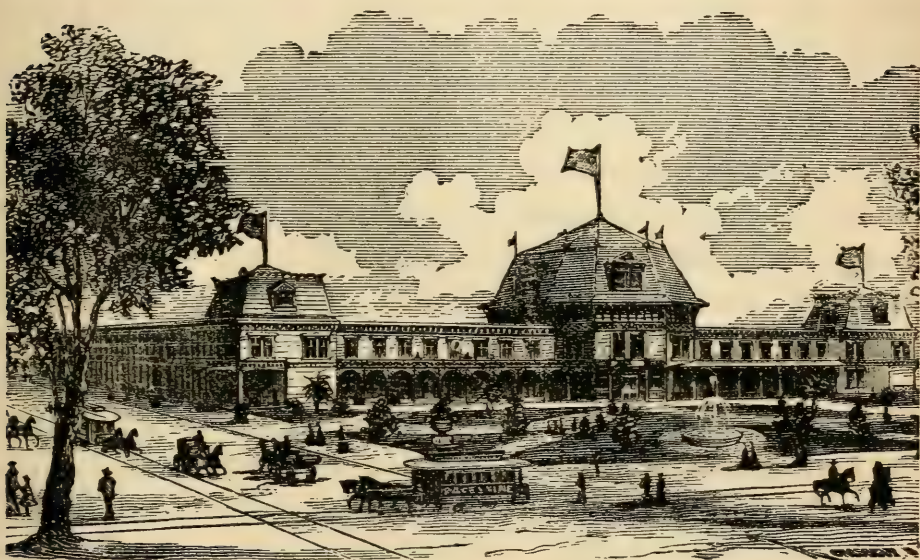
THE UNITED STATES HOTEL, NEAR THE MAIN EXHIBITION BUILDING.

Across Belmont avenue, a short distance back of Elm avenue, with nothing between it and the Exhibition buildings to break the view, stands the monster *Globe Hotel*, built also to accommodate the throng of visitors to the Exhibition. It stands on Belmont avenue, within 500 feet of the main entrance to the Exhibition grounds. It is not flush with the avenue, for a lawn interspersed with beds of bright flowers separates it from the roadway more than fifty feet. A verandah fifteen feet wide and no less than 900 feet long encircles the building, and will afford a cool promenade during the warm summer evenings. The hotel, including the mansard roof, is five stories high, and the area which it covers is about 81,000 square feet. At the entrance to the hall is the office, eighty feet square; the dining-room, which will be able to accommodate thirty thousand persons a day, is 500 by 53 feet. There are forty-seven flights of stairs, the steps seven feet wide, running in a direct line from the basement to the roof. Upon the uppermost floor are tanks capable of containing 15,000 gallons of water, and there is a regularly-organized fire department that is competent to nip a conflagration in the bud. The ventilation is perfect, and guests will not have to make the complaint so universal on the continent of Europe that they have to rinse their faces in a soup plate half full of stagnant water and wipe them with the pillow case, for every room is completely furnished. The upper floors can easily be reached, by means of the elevators, by weary guests, who can summon servants at will by the touching of electric bells. In fact, every possible provision has been made to insure the comfort and security of all who make the *Globe* their abiding-place. The Pennsylvania Railroad will debark passengers on the hotel grounds, so there will be none of the uncomfortable jolting by stage or car, which proves such a trial to tired travellers; they will be at home when they land, for they will find all they desire at their immediate beck and call. It contains 1100 rooms, with accommodations for 4000 guests.

The *Globe* is under the management of Mr. John A. Rice, so well and favorably known to travellers as the proprietor of the Grand Pacific Hotel of Chicago, one of the most genial and

accomplished gentlemen in the country, and a very prince of "men who can keep a hotel."

Within a square of the Exhibition grounds, and in the rear of the Transcontinental, is the *United States Hotel*, at the corner of Forty-second street and Columbia avenue. It was built and is owned by Mr. R. J. Dobbins, already referred to above, and is so constructed that it can be readily converted into first-class dwellings after the close of the Exhibition. It is one of the pleasantest of the Exhibition hotels, and while perfectly convenient to the grounds is sufficiently removed from them to escape



GRAND EXPOSITION HOTEL.

the noise and confusion which reign supreme on Elm and Belmont avenues. It contains 325 rooms, with accommodations for 600 guests.

Another monster establishment is the *Grand Exposition Hotel*, at the intersection of Girard and Lancaster avenues. It contains 1325 rooms, and has accommodations for 4000 guests. It is delightfully located in a pleasant neighborhood, and is within fifteen minutes walk of the main entrance to the Exhibition. The street cars pass the door, and afford direct communication with the Exhibition and all parts of the city. The house is under the management of Mr. M. Riley. It is conducted on the European plan.

Having thus disposed of the four great hotels that owe their existence to the Exhibition, let us glance at the town that has sprung up around the great buildings. It is very different from the city which lies in the distance beyond it, and possesses such a distinctive character of its own that no description of the Exhibition would be complete without some reference to it.

We begin our inspection on Elm avenue below the Main Exhibition Building. Within the limits of the Park, and a few hundred yards below the Exhibition grounds, is a huge circular building of corrugated iron. This is *The Panorama*, and is built somewhat upon the plan of the Colosseum, on Broad street. It is used for the exhibition of the panorama of *The Siege of Paris*, painted by Colonel Lienard of the French army. This picture was exhibited in New York during the past winter, and received the highest praise from both press and public. Standing upon the central platform—the point of observation—the gazer beholds every detail of the memorable siege of Paris by the Prussian army in 1870–71, reproduced with life-like exactness. Visitors are admitted during the hours of the Exhibition at a moderate charge.

Looking up Elm avenue and across to Girard avenue, from this point, the scene is gay and inspiring. On the right tower up the huge masses of the Exhibition buildings. On the left, stretching away up Elm avenue for nearly a mile, is a line of restaurants, small hotels, beer-gardens, ice-cream saloons, and small shows that have sprung up as if by magic. Each is gayly decorated with flags and streamers, and at night glitters with scores of gas-lamps of all possible hues. Almost every one of these buildings has a flat roof, which is either left open and sheltered by a canvas awning, or the second story is built open in order that the guests of the house may enjoy the air while eating and drinking. These upper stories form capital points of observation, and from any of them a brilliant and interesting picture of the street and the Exhibition buildings and grounds may be obtained. Many of the “beer-gardens” are provided with bands of music, which add to the gayety of the scene, and attract customers.

Every available foot of ground is covered, and the buildings

are arranged in a manner that is often amusing. There is no ground wasted in the rear of the front line of buildings. A small side alley often leads to an extensive restaurant or beer-garden set back behind the front line. The prices paid for the leases of the ground were high as a rule, and the buildings are cheap and flimsy. They are mostly of wood, a few being of brick. A fire in any one would spread with a rapidity that would defy all efforts to check it, and the sense of insecurity one feels in gazing at this immense mass of wooden structures is painful.

At Forty-first street and Elm avenue commences a line of small hotels. These are of brick, and though small are generally well kept. The principal are, the *Elm Avenue Hotel*, at the corner of Forty-first street and Elm avenue; the *Metropolitan*, in Forty-first street, just out of Elm avenue; the *International*, a German house, on Elm avenue, a few doors above Forty-first street, and *Congress Hall*, a few doors higher up. These houses can accommodate from 200 to 800 guests—the latter being the capacity of Congress Hall. The last-named house is conducted on the European plan; the others on the American plan of full board. They are the best of the cheaper hotels in the vicinity of the Exhibition.

Set in the midst of the long row of bar-rooms and beer-gardens which line Elm avenue, like a rose among thorns, is the "Temperance Dining-room," from which intoxicating liquors of all kinds are sternly excluded.

A walk of a square down Forty-first street brings us to Girard avenue, beyond which rise the handsome iron bridges at this and Fortieth streets, over the tracks of the Pennsylvania Railroad. By means of these bridges the Market Street Passenger Railway Company is enabled to reach Elm avenue and the street-car concourse in front of the Main Exhibition Building without using the tracks of any of the other roads.

Looking down Girard avenue towards the Schuylkill, one beholds a long line of restaurants, beer-gardens, bar-rooms, and cheap hotels similar to those on Elm avenue, all gaudily decorated and gay with flags.

Just about Forty-first street, Girard and Columbia avenues cross each other obliquely, the former continuing its course, through West Philadelphia, the latter stopping short at Belmont avenue. Gathered around their intersection are the "Carriage Repositories," a peculiar feature of the Exhibition. These consist of several establishments, each of which is made up of an office, one or more waiting-rooms, and long lines of rough sheds enclosed with a high board fence. The sheds are divided into stalls, and are intended for the accommodation of carriages and horses. Visitors coming from the city or the surrounding country in their own carriages or buggies may leave them at these "Repositories," and receive checks for them. They will be left in charge of competent hostlers, and a charge of fifty cents per carriage will be made for taking care of them. The repositories are connected by wires with the telegraph offices in the Exhibition grounds, from which visitors about to return may order their teams to be gotten in readiness for them, and thus avoid all delays at the stands. One of these "Repositories" contains 1000 stands or stalls; another 300; and a third 500. The "Repository" at the intersection of Girard and Columbia avenues is ornamented with a handsome two-story building containing a bar, a restaurant, private rooms for ladies, dressing-rooms, etc.

Returning to Elm avenue by way of Forty-first street, we continue our walk towards Belmont avenue. The line of restaurants is broken by a building, covered with coarse and glaring pictures which inform us that the establishment is a "Museum." Here may be seen the wild men of Borneo, and the wild children of Australia, the fat woman whose avoirdupois is put down in the bills at 602 pounds, a weight heavy enough to entitle her to a place in Machinery Hall, and a collection of "Feejees," who are vouched for by the exhibitors as "pure and unadulterated man-eaters." Most visitors will accept this assurance without seeking to put it to the test.

A few doors above the "Museum" is an establishment richly worth a visit. Two tall derricks of frame-work rising above the highest of the surrounding buildings at once attract the attention of passers-by. A large canvas suspended between

them announces that this is a "Pennsylvania Oil Well." This establishment is the property of Messrs. O'Donnell, Alshouse, & Louge, of Titusville, Pennsylvania. They have erected, at a cost of \$24,000, a large working oil well, such as is used in the oil regions of Pennsylvania. The members of this firm are enterprising and practical men, and their business is the sinking of oil and artesian wells. They have bored many of the most successful wells in the oil regions, and with commendable enterprise have purchased the ground on which their establishment stands, and have erected all the machinery necessary to the successful working of an oil well of the largest size, in order that visitors to the Exhibition, both native and foreign, may see the practical operation of what is now one of the leading industries of America.

Messrs. O'Donnell, Alshouse & Louge use the most improved machinery in their works, and by their operations here show the working of both pumping and flowing wells. They design to show also all the improvements that have been made in the business of boring for oil and raising it from the wells when sunk, from the discovery of petroleum in Pennsylvania down to the present day. For this purpose they will drill one well to a depth of 2500 feet, and with this illustrate the method of operating a "flowing well." A "pumping well" will also be sunk to a depth of 400 feet, and will show the working of this branch of the business. Their flowing well can be worked to an extent of 2000 barrels of oil per day. Considerable interest is felt by those acquainted with the plans of the firm, as to the result of the sinking of a well of 2500 feet depth at this point.

Among the objects of interest exhibited by this firm is the first "derrick" for boring wells ever set up in the Pennsylvania oil regions. An admission fee of 25 cents is charged.

Higher up, on Elm avenue, nearly opposite to the central pavilion of the Main Building, a section of one of the famous Big Trees of California attracts wondering spectators, who may from it form an idea of these marvels of the Pacific slope.

Immediately below the Transcontinental Hotel is a handsome building consisting of a long narrow gallery, the lower

story of which is a beer-saloon and the second story an open-air restaurant. At the Elm avenue end is a tasteful circular pavilion used as an ice-cream saloon. It forms one of the best points of observation on the street, and from it one may see the whole of the brilliant scene below while he sips his ices.

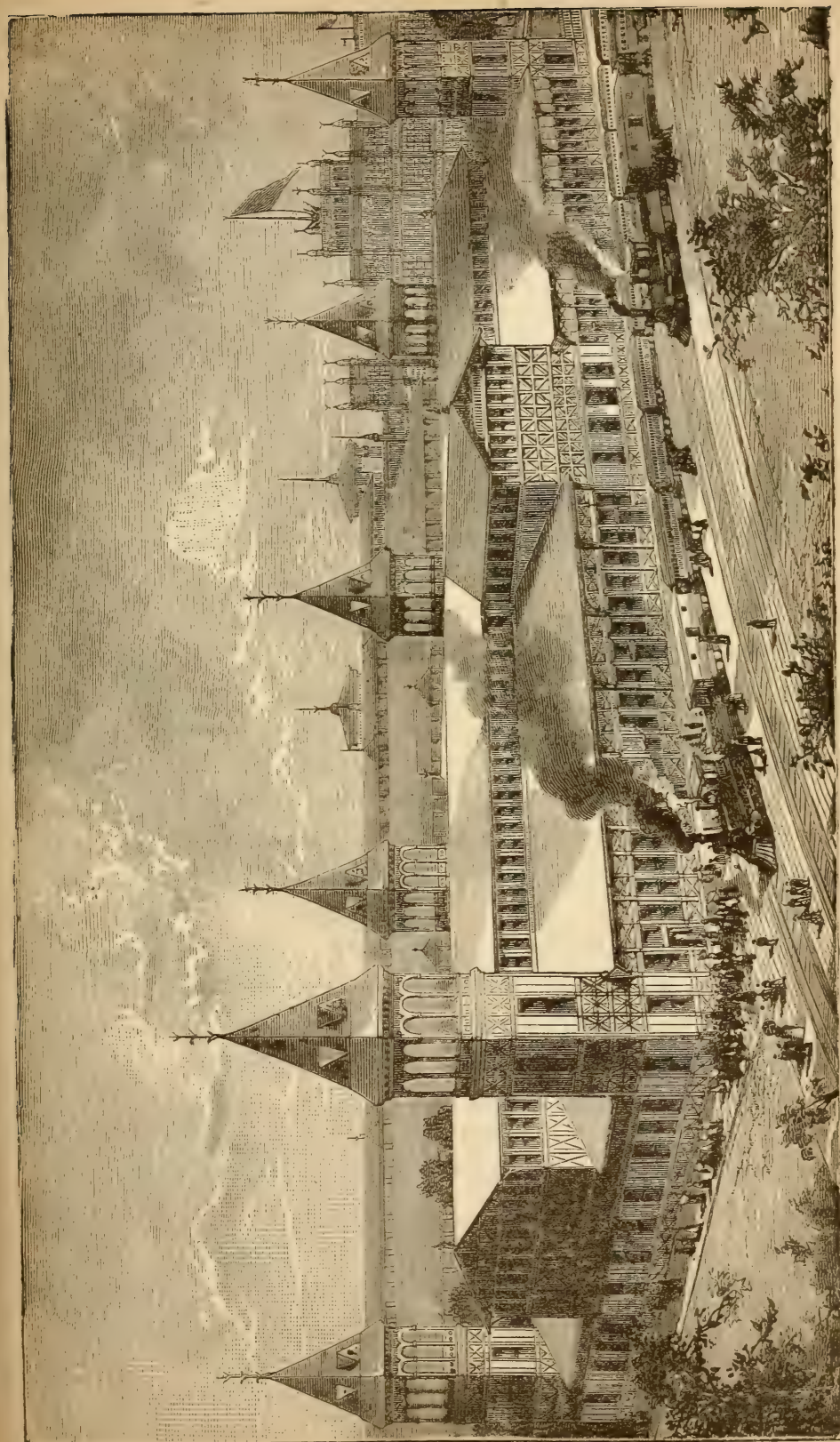
On the opposite side of Elm avenue, just under the shadow of the Main Building, is the *Street Car Concourse*. All the passenger railway lines centre here, and a number of tracks are laid for their accommodation. These are in the form of an ellipse, so that the turning of the car and changing of horses, which would result in endless confusion, are avoided. An endless stream of cars is arriving and departing at all hours during the day, taking on and discharging their thousands of passengers.

Belmont avenue is now reached. At the southwest corner of this street and Elm avenue is the *Transcontinental Hotel*, already referred to. Pausing a moment in the shelter of this handsome edifice, we notice the throng of vehicles gathered about the main entrances to the Exhibition grounds immediately opposite. Here are vehicles of every description—omnibuses, cabs, carriages, coupés, transfer coaches, etc., furnishing ample transportation of this class for all who desire to use it.

Through the gates of the Exhibition a steady throng pours in and out, and the turnstiles at the entrances keep up a constant clicking as they register the arrivals and departures.

Crossing Belmont avenue we continue on our way up Elm avenue, and come upon an open space lined with the “small-trade people.” Here are pea-nut stands, pie-stalls, the apple-men and women, Bologna sausage-vendors, dealers in cakes and lemonade, and the inevitable balloon-man. They make up a curious display as they stand patiently through the long hours of the hot and dusty day, offering their wares which no one seems to buy. You wonder, as you see them, how all these people manage to live; if they ever sell the uninviting wares in which they deal; and if those who buy of them eat their purchases.

Passing on, the *Centennial Depot of the Pennsylvania Rail-*



CENTENNIAL DEPOT, PENNSYLVANIA RAILROAD, OPPOSITE MACHINERY HALL.

road, on Elm avenue, opposite the main entrance to the Exhibition grounds, is reached. This is a large and handsome wooden structure, tastefully painted to harmonize with the great buildings across the street, and is ornamented with picturesque towers at its four corners. It is provided with all the conveniences of a first-class railroad depot, and is in all respects worthy of the great road to which it belongs.

The depot building is devoted to offices, ticket-offices, waiting and baggage rooms, etc. The waiting-rooms are large and airy, and are abundantly supplied with comfortable seats. News and refreshment stands are established at convenient points, and several ticket-offices are attached to these rooms.

The doors on the north side of the building lead out upon Elm avenue. Those on the south side open upon a series of platforms provided with three lines of track, each of which is enclosed with a picket fence separating it from the others. The tracks enter the depot enclosure at one end, pass around in a semi-circle, and leave it at the opposite end. This arrangement allows the use of the depot by a large number of trains without confusion. The main line of the Pennsylvania Railroad is but a few hundred yards distant, and all western trains of this road pass through this depot, thus landing their passengers at the very gates of the Exhibition. Trains also arrive at this station from New York, Baltimore, and Washington, so that passengers from all parts of the Union by the Pennsylvania Railroad and its southern and eastern connections can be set down here, and may here take the trains for their distant homes.

The depot is a busy place. Trains are constantly arriving and departing, and each one brings in or takes out its load of human freight. So perfect are the arrangements, and so strictly are the tracks guarded against the intrusion of persons not connected with the road, that in spite of the constant moving of trains and the vast crowd of passengers, accidents are impossible.

Above the Pennsylvania Railroad Depot, the line of restaurants, beer-saloons and bar-rooms begins again. These establishments are inferior to those below Belmont avenue, but the same reckless use of wood is found here, and the same lavish use of

flags and painted canvas is seen. The danger of fire is even greater here than below Belmont avenue, for here the buildings are generally of wood, and of the flimsiest character.

One square back of Elm avenue, on Viola street, and extending from Fifty-second to Forty-eighth street, is the *Atlas Hotel*. It consists of a number of frame buildings connected by covered galleries. The hotel contains fifteen hundred rooms, and can provide accommodations for three thousand people.

Returning to Belmont avenue, we pause once more to gaze upon the busy scene at the intersection of this thoroughfare with Elm avenue. On the one hand are the main entrances to the Exhibition grounds, with the eager throng around them; to the east and west stretches away the long line of Elm avenue, gay with flags and alive with music and the sharp rattle of passing vehicles. Facing Belmont avenue the scene is equally attractive. To the right is the large open space occupied by the Pennsylvania Railroad, with its constantly arriving and departing trains, with the main line beyond it, and farther on the towers and flags of the huge Grand Exposition Hotel are seen rising above the trees. On the left is the Transcontinental Hotel, about the entrance of which a crowd is always collected. A constant stream of street cars and carriages pours along Belmont avenue, which is the main route from the Exhibition into the city, and the street is as busy, as bustling and as gay as its neighbor, Elm avenue.

About one hundred yards back from Elm avenue is the Globe Hotel, which has been described. It stands opposite the Transcontinental and fronts on Belmont avenue. It is an immense structure, the prevailing colors of which are gray and brown, and its long galleries offer a delightful promenade, and remind one of the great watering-place hotels.

In the open space between the upper end of the Globe and Elm avenue are two structures, which from their peculiar appearance are sure to attract the attention of strangers. One of these is a large building erected as a soda water saloon by Mr. James W. Tufts, of Boston, the well-known manufacturer of soda water fountains and apparatus. Mr. Tufts has some thir-

teen or fourteen soda water fountains in operation within the Exhibition grounds, but his greatest display is reserved for this building. The exterior of the edifice is neat and tasteful, and the interior is fitted up very handsomely and adorned with elaborate frescoes. In the centre stands a splendid fountain of variegated marble, with silver trimmings. It is forty feet in height, and was erected at a cost of between twenty-five and thirty thousand dollars. It is the largest fountain in the world, and is by far the handsomest. It is capable of supplying an almost unlimited demand for soda water, as it has seventy-six syrup, eight soda, and twenty mineral tubes.

Immediately adjoining the soda water hall is a showy pavilion constructed mainly of colored glass set in a tasteful frame work. This is the *Cigar Pavilion* of M. Salomon & Co., importers of Havana cigars, whose wholesale houses in Philadelphia and New York have long been known to the trade.

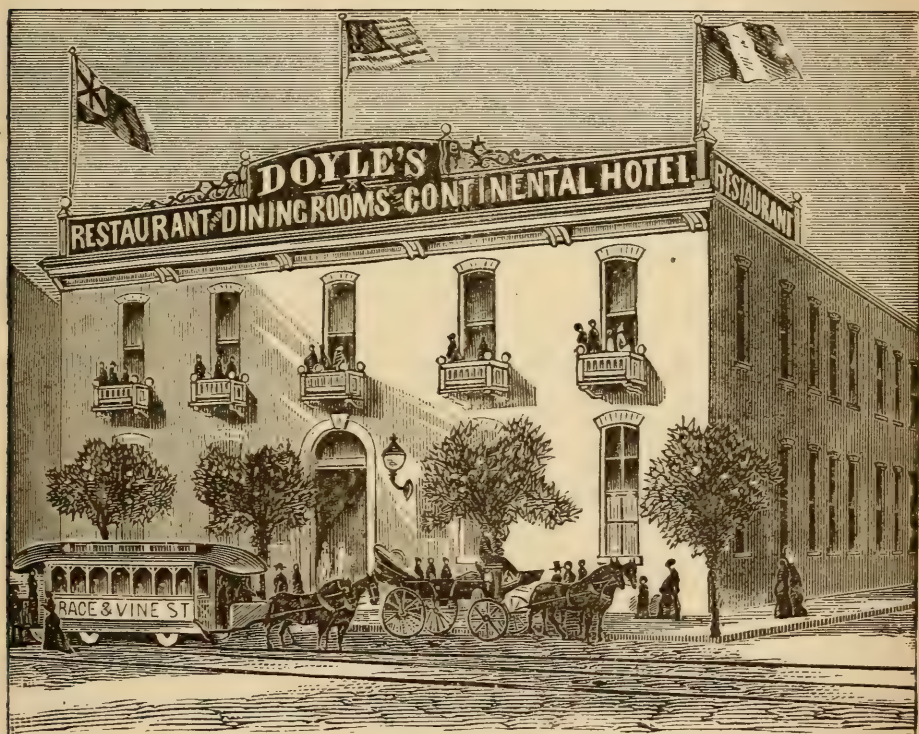
On the east side of Belmont avenue, immediately in the rear of the Transcontinental Hotel, is *Wiley's Restaurant*, with a handsome entrance and an open-air saloon in the second story. Next door to it is *Doyle's Restaurant*, a large and substantial edifice of brick, with a spacious dining-hall, a café, and a bar-room on the first floor. Here are also telegraph offices, writing and wash-rooms, and a private parlor for ladies. The second floor contains numerous suites of rooms, private parlors, banquet-rooms, etc., which may be engaged by private parties. There are also lodgings here for two hundred men at moderate rates. The house is the property of Mr. John Doyle, late of the Continental Hotel.

Next below Doyle's is *Tischner's Restaurant*, a handsome private dwelling altered to suit the demands of the times. It stands in the midst of its own grounds and is shaded by fine trees, and constitutes one of the prettiest features of the street. At the entrance to these grounds is a handsome pavilion containing a beautiful marble soda fountain, from which cooling drinks are dispensed for the refreshment of weary passers-by.

The east side of Belmont avenue, from Columbia avenue to Jefferson street, is taken up with the stables and depot of the

Philadelphia City Passenger Railway, tasteful and substantial buildings of pressed brick.

Immediately opposite, and adjoining the Globe Hotel, is a huge building of wood, covered with corrugated iron and painted in light colors. This is *Operti's Tropical Garden*, one of the handsomest places of amusement in Philadelphia. It is light and airy as befits a summer garden, and is handsomely decorated with frescoes and other paintings. Long lines of colored globes, each containing a gas jet, stretch across the interior



DOYLE'S RESTAURANT.

beneath the ceiling, and shed a brilliant light upon the scene below. At the back a large waterfall dashes over the painted rocks, forming a beautiful cascade, and giving to the air on the hot nights of the summer a delicious coolness. The orchestra stand is in the centre of the hall, and is profusely decorated with flowers and shrubbery, which are also scattered lavishly through the hall. The chairs of visitors are arranged around the orchestra on the lower floor, and in a large gallery which extends entirely around the hall.

The scene within the hall during the performances is very beautiful. Rocky nooks and beds of rare and beautiful flowers invite the visitor on every hand. The splendid cascade dashes down its rocky height, glittering in the radiance of a powerful lime light shed upon it from an invisible point. Different colored lights flash down from the lamps overhead, and the air is laden with the rich perfume of the flowers and the delicious coolness of the waters.

The music is furnished by a superb band of over sixty performers led by Signor Guisepppe Operti. The uniform of the musicians consists of a military cap, a dark blue coat with red and gold trimmings, and white pants and vest. As the concert begins the water is turned off from the cascade, which is silent during the performance; but the moment the music ceases it springs into life again.

The garden and the performances will compare favorably with any in the country, and every effort will be made by the management to render it a place of amusement suited to the demands of the most fastidious taste. The admission fee is half a dollar; and in order to prevent the intrusion of improper characters the management announce that they will deny admission to ladies unaccompanied by gentlemen.

Below the Tropical Garden the line of cheap restaurants and bar-rooms commences, and continues unbroken to Girard avenue. These are mostly of brick, and altogether Belmont avenue has a more substantial and respectable appearance than Elm avenue. The two great hotels, the musical garden and the solid appearance of its buildings give to it more of the aspect of a street of a great city, and the picture, as one surveys it from Girard avenue, is enhanced by the great buildings of the Exhibition and the long reach of Exhibition grounds, which stretch away from the head of the street to the hills of the Park.

At Girard avenue a fine iron bridge carries the line of Belmont avenue over the tracks of the Pennsylvania Railroad, and a similar structure at an oblique angle to the first continues the line of Girard avenue unbroken to the westward. From this bridge a fine view may be obtained of the main line of the

Pennsylvania Railroad for a distance of several miles, and of its Centennial branch and depot. The constant moving of trains, which pass this point at a high rate of speed, renders this view one of the most interesting to be had in the vicinity of the Exhibition.

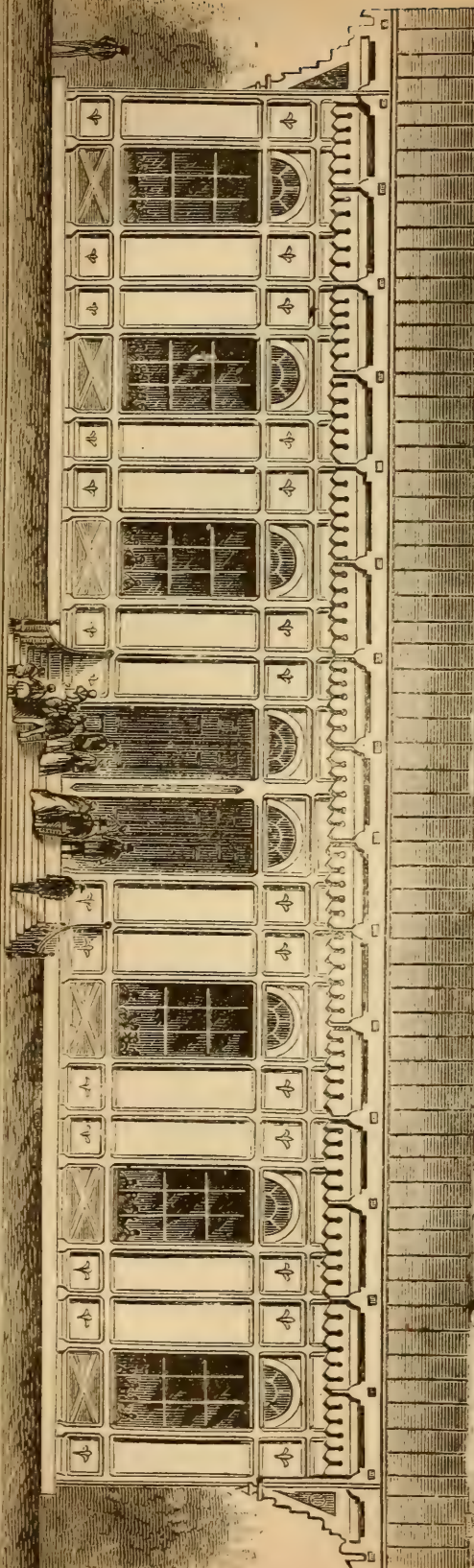
At Girard avenue the temporary town which has grown up about the gates of the Exhibition ceases, and a long, sparsely built region intervenes between it and Philadelphia proper.

No one should fail to obtain a view of this "Centennial town" from some commanding point at which the whole picture can be taken in at once. The central towers of the Main Exhibition Building afford a capital place from which to view this curious panorama, as from them both Belmont and Elm avenues, and the distant line of Girard avenue, with the intervening cross streets, may be seen. The contrast between the splendid and imposing structures within the Exhibition grounds and the cheap and tawdry buildings which lie beyond them is striking indeed. Still, the scene is curious and interesting, and not the least among the "sights" of the Exhibition.

Scarcely less interesting is the scene within the Park beyond the enclosure of the Centennial grounds. At the prominent points, such as George's Hill and Belmont, crowds assemble to view the busy scene within the Exhibition grounds. One cannot realize the extent and variety of the Exhibition until he has viewed the buildings and grounds from one of these points. A tall observatory of frame-work has been erected on George's Hill, from which a view of the "Centennial" and the surrounding country may be had. A similar view can be obtained from the Sawyer Observatory at Belmont. Those who do not wish to soar so high as the summit of this structure may sit in the balconies of the restaurant or under the trees and enjoy the magnificent view, which embraces the Centennial grounds, the river with its bridges, the Park and the distant city beyond. The Centennial, with its multitude of restaurants, has not robbed Belmont of its popularity, and on fair days one is sure to find this favorite resort thronged with guests.

Two prominent points of interest are situated on the river

PHILADELPHIA & READING R.R. PASSENGER DEPOT



CENTENNIAL DEPOT OF THE PHILADELPHIA & READING RAILROAD.

shore. The first of these is the landing-place of the Schuylkill steamboats, which ply between the Falls and the city, making regular landings here. Broad flights of stairs lead from the water to the summit of the hill above, and afford an easy means of reaching the entrances to the Exhibition grounds.

The other and last point of interest without the enclosure is the depot of the Philadelphia & Reading Railroad. It is a tasteful frame building, painted in colors which harmonize well with the luxuriant foliage in which it is embowered. The depot is provided with ticket offices, waiting-rooms, private rooms for ladies, and all the conveniences of a first-class railway station. The tracks of the main line lie alongside the station, and a long platform affords the means of entering and leaving the cars. A plank walk-way leads up an easy ascent from the depot to the entrances to the Main Exhibition Building. The depot is situated in one of the loveliest sections of the Park, and there can be nothing more charming and delightful than the view which greets the wearied sight-seer, returning from the Exhibition to the cars, as he descends the hill towards the river. The luxuriant foliage seems to enwrap the depot building, so thickly does it cluster about it; and through the opening in the trees can be seen the broad and beautiful river, with the picturesque arches of the bridge in the distance, and the bold, bluff-like shores of the East Park across the water.



CHAPTER X.

THE EXHIBITION GROUNDS.

Topography of the Grounds—The Ravines—The Entrances—The Turnstiles—
Styles of Tickets used—The Photograph Regulation—The Centennial Guard
—The Fire Department—The Narrow-Gauge Railway—The Rolling Chair
Service—Landscape Gardening—The Flowers—The Avenues—The Bridges
—Bartholdi's Fountain—The Roman Catholic Total Abstinence Fountain—
The Centennial Waterworks—Relief Plans of Foreign Cities—Statue of Re-
ligious Liberty—Statues of Christopher Columbus and Elias Howe—The
Hunter's Camp—An Old-Fashioned Railroad Train—The American
Soldiers' Monument—The Ice-Water Fountain—The Indian Camp.

THE Commissioners of Fairmount Park transferred to the United States Centennial Commission, for the purposes of the International Exhibition, a tract of 450 acres. Of this tract 236 acres have been occupied by the Exhibition buildings and the open spaces between them, and have been enclosed with a stout picket fence.

The tract thus enclosed is admirably adapted to the purposes of the Exhibition. It is an elevated plateau, with three spurs jutting out toward the river, separated from each other by deep, wooded ravines, through which flow small streams. The ravine nearest the southern end of the grounds is called the Lansdowne valley, the other the Belmont valley. The Lansdowne valley is spanned by two handsome bridges, the Belmont valley by one, these bridges affording an easy communication between the various portions of the grounds.

The Exhibition plateau stands 120 feet above the Schuylkill, and is always swept by a delightful breeze. The view from either of the spurs is exquisitely beautiful, embracing as it does the river, the park, and the distant city. The most northern of these spurs is occupied by the Agricultural Building, the

central one by Horticultural Hall, and the southern by Memorial Hall. The three unite in a broad plain, which contains the Main Building, Machinery Hall, the United States Government Building and a number of smaller structures. The sides of the ravines and the spaces between the more prominent edifices are also thickly covered with buildings.

Thirteen places of entrance and exit to and from the grounds have been selected by the Board of Finance. These are located at points convenient to the main roads and nearest to the places at which the horse and steam railways and steamboats will set down their passengers.

"The entrances nearly all have four gates: one for visitors proper to the Exhibition, that is, those who pay to go in; another for persons bearing complimentary tickets; a third for exhibitors, representatives of the press, and employés, in fact, for all not belonging to the two classes just named; and another for wagons. At these points of entrance, so called, are also placed the exits. Based upon a careful calculation of the traffic over each of the roads surrounding the Exhibition grounds and leading to the entrance points selected, have been placed from one to thirty-three gates or turnstiles. Of these altogether there are one hundred and six. The exits, in their vicinity, are forty-two. On page 318 will be found a detailed statement of their number and position.

"The turnstiles, which have the usual four arms, are in twos at the end of passage-ways ten feet long, separated by another passage-way to be afterward described. These lead slantingly from the doorway, so as to prevent a direct crowd pressure upon the head of the line of visitors. Other means have also been adopted to prevent this pressure. Each turnstile is under the control of a keeper, who sits or stands behind a short counter and receives from each visitor the admission fee—a fifty cent note—before the visitor passes the arm of the stile, which is, by a mechanical contrivance, operated by the keeper's foot. As the stile turns for each entrance it registers itself as well at the gate as electrically at the manager's office, with which each has electrical communication.

No.	LOCATION.	Money gates.	Complimentary gates.	Exhibitors, employes, etc.	Wagons.	Exits.
1	East end of Main Building.....	15	2	3	2	5
2	Centre of Main Building, facing Elm avenue...	5	...	3	1	6
3	Main entrance, intersection of Belmont and Elm avenues.....	33	2	3	1	13
4	Centre of Machinery Hall, on Elm avenue.....	2	...	2	1	2
5	On Fifty-second street, where it intersects Fountain and Elm avenues.....	2	...	2	1	2
6	George's Hill, western entrance of "Avenue of the Republic".....	2	...	...	...	1
7	At the intersection of Belmont drive and Belmont avenue.....	1	1	2	1	2
8	Glen Entrance, on Lansdowne drive.....	2	...	2	1	2
9	Belmont Valley (entrance for visitors arriving by steamboat), on Lansdowne drive.....	2	...	...	...	1
10	Horticultural Hall (entrance for visitors arriving by steamboat), on Lansdowne drive.....	2	...	2	1	2
11	Lansdowne Valley (entrance for visitors by steamboat and Reading Railroad), under bridge at Lansdowne drive.....	4	...	2	...	2
12	Memorial Hall, Lansdowne drive, south of the former entrance.....	3	1	2	1	2
13	Old River road, at the intersection of the Lansdowne drive.....	3	...	1	1	2
		76	6	24	11	42

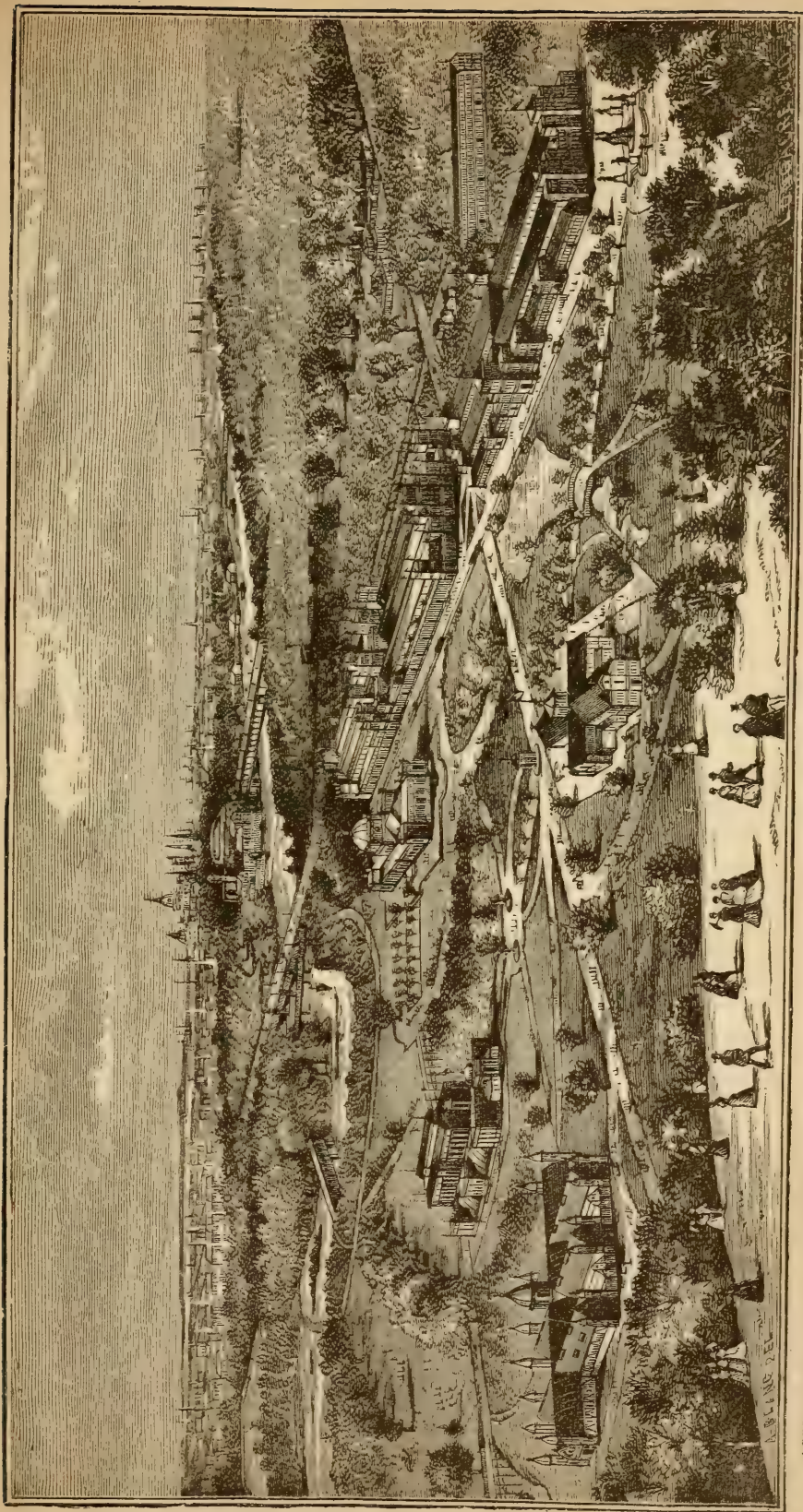
RECAPITULATION.

Money gates.....	76
Complimentary	6
Exhibitors, employes, press, etc.....	24
Total number of entrances.....	106

"The money, when received by the gate-keeper, is deposited in a box placed under the counter, which also by a mechanical contrivance locks itself as it is pulled from the position which it occupies when in use. Its opening can only be effected by the bank officers.

"Between the two counters and entrances stands an officer, who, with his back to the middle passage-way previously referred to, watches both lines as they enter. On the happening of the least disturbance he will draw the disturber from the line and pass him down this passage and out beyond the fence.

"The exits are of ingenious contrivance, and, while permitting freely the departure of persons from the grounds through



AGRICULTURAL HALL.

HORTICULTURAL HALL.

MEMORIAL HALL, OR ART GALLERY.

MAIN EXHIBITION BUILDING.

MACHINERY BUILDING.

BIRD'S-EYE VIEW OF THE CENTENNIAL BUILDINGS, FAIRMOUNT PARK, PHILADELPHIA.

turnstiles of rather different construction than those described above, absolutely prevent re-entrance, although no officer is required to watch them. They resemble small roofed sheds, with two gates opening inward or backward from a centre post on the fence line. One of the sides of the shed is extended or continued in an arc till its inner limit is opposite the centre of the gate-post. At the other side, opposite the spot at which the arc (or fender) starts, and rising one above another, extend out, at right angles with the side, a series of fixed lateral bars or arms nine feet high. On a line with this, and also on a line with the end of the fender opposite the gate-post, rises another post on which another turnstile revolves, the four arms of which repeated, rise as high as the top of the lateral bars, between which they pass on each quarter revolution. This latter works with a ratchet, and always outward.

“It will be seen from this that when a visitor desires to leave the ground he has to place himself in a triangle formed by two of the turnstile arms and the fender. As he moves forward and outward the turnstile moves with him until he finds himself at the gate. He cannot change his mind and get back, this being prevented by the outward movement controlled by the ratchet, nor can he come in again without the payment of another fifty cent note, this being prevented by the fixed lateral bars.

“The designs of all the entrances are very neat and tasteful. The wagon entrances, ten feet high, being necessarily the widest and highest, admit of the greatest scope for ornamentation. They are surmounted with American trophies, shields, flags, eagles, etc. A flagstaff rises at each side, and the name ‘International Exhibition’ is over the door. A similar style of ornamentation is upon the pedestrian entrance gates and exits. On panels over the gates are gilt signs indicating whether they are for employés, etc., or are complimentary, or pay entrances.”

No tickets are used for the pay admissions. The visitor is required to come provided with a fifty cent note or a silver half-dollar. There must be a separate fifty cent note or half-dollar for each visitor. The gate-keepers have no authority to accept notes or silver pieces of a larger or smaller denomination, and

do not furnish change. At each entrance an office will be found to furnish change for large bills.

There are but two kinds of tickets issued or used—complimentary tickets, and those issued to exhibitors, members of the press, employés, etc. Complimentary tickets are issued only to persons whose high official stations entitle them to the privilege, and the number will therefore be limited. These tickets are printed on heavy bond paper in square note-size sheets. The design is on the first page, a female figure of America seated on a globe, with a palm branch in her hand, and by her side a cornucopia. Beneath are the words, "United States International Exhibition, Philadelphia, opening May 10th, closing November 10th, 1876. Complimentary." They are signed by the President of the Board of Finance, the President of the Commission, and the Director-General. On the third page there is a request to the holder that he will deposit his card on entrance as a basis for future statistics of the Exhibition. The envelope containing these is worded as the note, but without the figure of America. The tickets for exhibitors, employés, etc., are on fine card, in the form of a two-leaved book. Round the centre space on the inner pages is a border of geometrical lathework-cutting, while around that are three rows of numerals, corresponding in number with the number of days the Exhibition will be open. Around these again is another lathework border. It is intended that one of these numbers, and the appropriate one, shall be punched on the first daily entrance of the holder. Each time he leaves the ground after his first entrance he will receive a pass or return-check. This is noted on the left leaf of the ticket. On the right inner page there is an oval in the centre surrounded by stars and ornamental lathework. In this oval the holder will be required to insert his photograph before the 1st of June, and he is reminded of this by the words in this space, "Not good after June 1st unless the regulation photograph of the holder be inserted in this place." Under the photograph space are the words, "Not transferable, forfeited if presented by any but the proper owner." On the first or title page outside is the title, "International Exhibition," with the holder's name,

his class, his country, and serial number. On the fourth or last page there is a lathework medallion with the warning, "This ticket will not be renewed if lost." The border on these two pages, as well as on the inner pages, is elaborate lathework.

For the protection of the buildings and the large and valuable collection gathered within them a special police or guard has been provided by the Commission. The force consists of 600 men, uniformed, and placed under rigid military discipline. They are quartered in barracks erected at the upper and lower ends of the Exhibition grounds, and are on duty day and night. They are organized as a regiment, under the command of a colonel, and are divided into companies, each with its proper officers. They are charged with the duty of guarding the buildings and their contents, and preserving order within the enclosure. They have full power to arrest offenders and convey them to the station house provided for their reception and detention until they can be turned over to the courts for trial.

A special fire department has also been provided. Several first-class steam fire-engines are located at convenient points within the grounds, and a system of telegraphic signals has been arranged by which the exact location of a fire can be instantly communicated to the engine houses. A number of Babcock Fire Extinguishers, ready for instant use, are placed in the various buildings, and every possible precaution against fire has been taken.

To visit the distant parts of the grounds on foot would be a slow and tedious undertaking, and would greatly interfere with the comfort and pleasure of visitors. As no carriages are allowed within the enclosure, a pleasant and speedy means of transit between the various portions of the grounds is provided in the *West End Railway*, a narrow-gauge railroad about four miles in length, which, beginning at the lower end of the Main Building, makes the circuit of the grounds. The road is laid with a double track, and is finely equipped with ten narrow-gauge locomotives and forty cars. The road with its equipment is a special exhibit by the West End Railway Company,

who have also purchased the sole right to transport passengers within the grounds. Passenger stations, consisting of enclosed platforms, are provided at convenient points along the line. Passengers purchase tickets at the offices at these stations, and deliver them to the guard upon entering upon the platform. They are then at liberty to take the train when it comes along, and may leave it at any station, or may make the circuit of the grounds for a single fare. The trains run at an average speed of eight miles an hour. The fare is five cents. No one visiting the Exhibition should fail to make the circuit of the grounds by means of this railway, as it is only by doing so that a comprehensive idea of the size and arrangement of the Exhibition can be obtained.

Rolling chairs are kept for hire at designated stations within the principal buildings, and may be used to pass from point to point within the grounds. They may be hired with the services of an attendant to propel them, or without, as one may desire. The charge, with an attendant, is sixty cents an hour, or \$4.50 a day. If hired without an attendant the charge is \$1 for three hours, subject to a drawback of thirty cents for each hour in which the chair is unused. These chairs are comfortable vehicles, in which one may sit at ease and make the tour of the buildings without fatigue. They are excellent for ladies or persons who are not able to endure the long and steady tramp through the buildings, and their construction and shape are such that they may be wheeled through the narrowest passage-ways of the enclosure, except within the special pavilions, and close up to the articles the occupant wishes to inspect.

Chairs and settees are scattered through the buildings and grounds, for the accommodation of visitors. No charge is made for the use of these. Many of the exhibitors have handsome sofas and other seats within their spaces, which are at the visitors' service.

The grounds are handsomely laid off, and are in many places well shaded by the native forest trees. The ravines which separate the spurs on which the principal buildings stand give

to them a picturesqueness which nothing else could impart. From almost any point a beautiful landscape stretches out before the gazer, and affords a pleasant and grateful contrast to the lines of buildings which stretch away on every hand. At the north side of Machinery Hall a pretty lake, covering about five acres of ground, constitutes a pleasant feature of the scene, and from its centre a fine jet of water springs up, cooling the air with its moisture. Other fountains there are to be noticed hereafter. The spacious grounds in front of Horticultural Hall are dotted with parterres of flowers and are traversed by a sunken garden leading up to the portals of the hall. Wherever it was possible to save any ground for ornamentation, there the landscape gardeners have been busy, and fresh grass swards and beds of flowers afford new delights to the lovers of the beautiful. The fine old trees of the park add greatly to the beauty as well as to the comfort of the scene.

The grounds are traversed by five main avenues, and by many miles of walks which are nameless. The first of the main thoroughfares is the Avenue of the Republic, which commences at the eastern end of the grounds and runs north of the Main Building and Machinery Hall to the Roman Catholic Fountain. It is 100 feet in width. Belmont avenue extends from the main entrance on Elm avenue, between the Main and Machinery Halls, to Belmont, crossing the grounds obliquely. Fountain avenue extends from the Roman Catholic or Temperance Fountain to Horticultural Hall. Agricultural avenue extends from the Avenue of the Republic, near the western end of the Main Building, to Agricultural Building. State avenue skirts the base of George's Hill. All the avenues and walks are paved with asphaltum.

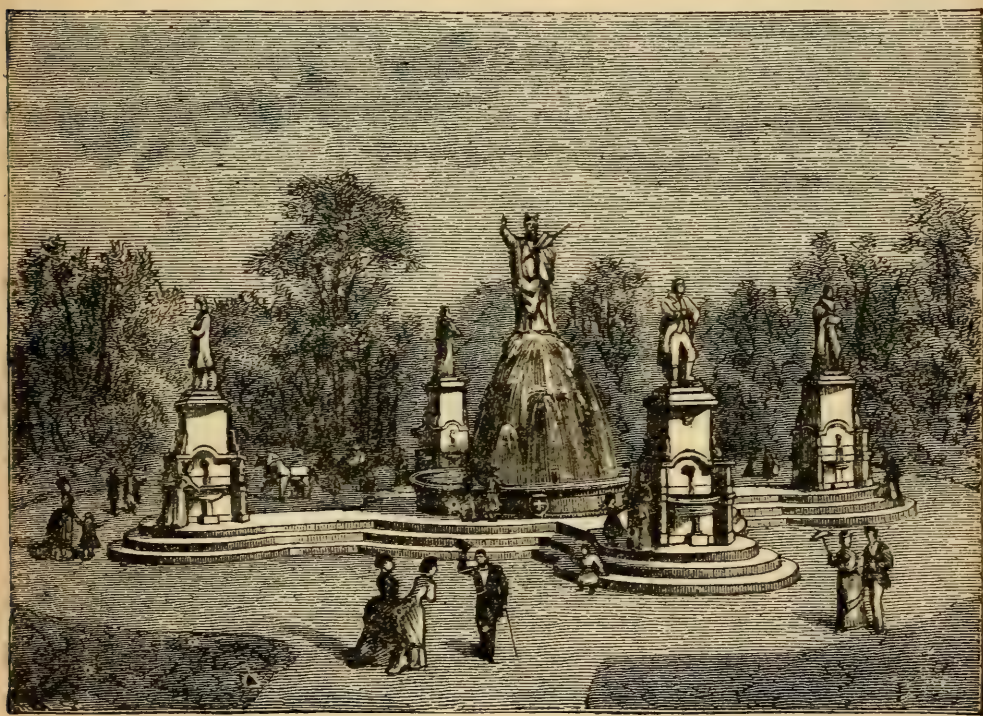
To furnish direct communication between the various parts of the grounds at their eastern end a fine bridge is thrown over the Lansdowne ravine, just north of Memorial Hall. The bridge consists of twelve spans, and has a total length of 515 feet. The roadway is 60 feet wide, and the footwalks 10 feet wide each, making the total width of the bridge 80 feet. The foundations are masonry throughout, trestles of timbers being

erected on the piers. The trestles are formed with combination posts, the pieces firmly bolted and mortised together, forming a stiff, rigid system. The masonry is of the best Conshohocken stone, that in the foundation being laid with good flat beds, the stone of good size and shape, none averaging less than 6 cubic feet, and the footing courses projecting 6 inches on all sides. The masonry above ground is rock-range work, pointed with dark mortar. The wrought-iron work is specified of the best quality, and all the lumber throughout the structure is of the first quality white pine, except the upper flooring and curb, which is of white oak. All parts of the bridge, except the flooring and floor-joist, are painted in three coats of oil of approved tints. The fence which encloses the Exhibition grounds passes along the centre of the bridge, thus reserving one part of it to the Exhibition and devoting the other to the public drive through the park. Another bridge has been built higher up, over the Lansdowne valley, and Belmont valley is also bridged in several places.

The Esplanade, at the main entrance between the Main and Machinery Halls, has been handsomely laid off with grass plots and beds of flowers. In the centre is a large bronze fountain, with statues of Light and Water, "the twin goddesses of cities," by Bartholdi.

At the west end of Machinery Hall is the Centennial Fountain, erected by the Catholic Total Abstinence Union of America. It is constructed entirely of marble and granite, and is one of the finest works of art in America. The design is by Herman Kirn, a young sculptor of Philadelphia, a pupil of the celebrated sculptor Steinhäuser, of Karlsruhe. It consists of a granite platform in the form of a Maltese cross, and approached by steps which extend entirely around it. In the centre is a large circular basin, 40 feet in diameter, from the centre of which rises a mass of rock work, on the summit of which a colossal statue of Moses is placed. He stands with one end of his rod resting on the rock which he has just struck, and from which the water gushes in streams about his feet and flows down into the basin below. At each of the four points of the

cross is a handsome pedestal of white marble, near the base of which is a drinking-fountain. Each pedestal is surmounted by a marble statue 9 feet high. The persons represented by these statues are Charles Carroll, of Carrollton, Father Matthew, Archbishop Carroll, and Commodore John Barry, a distinguished naval officer of the Revolution. The fountain is one of the handsomest ornaments of the grounds, and will remain after the Exhibition buildings have been removed; the cost of the fountain was \$50,000.



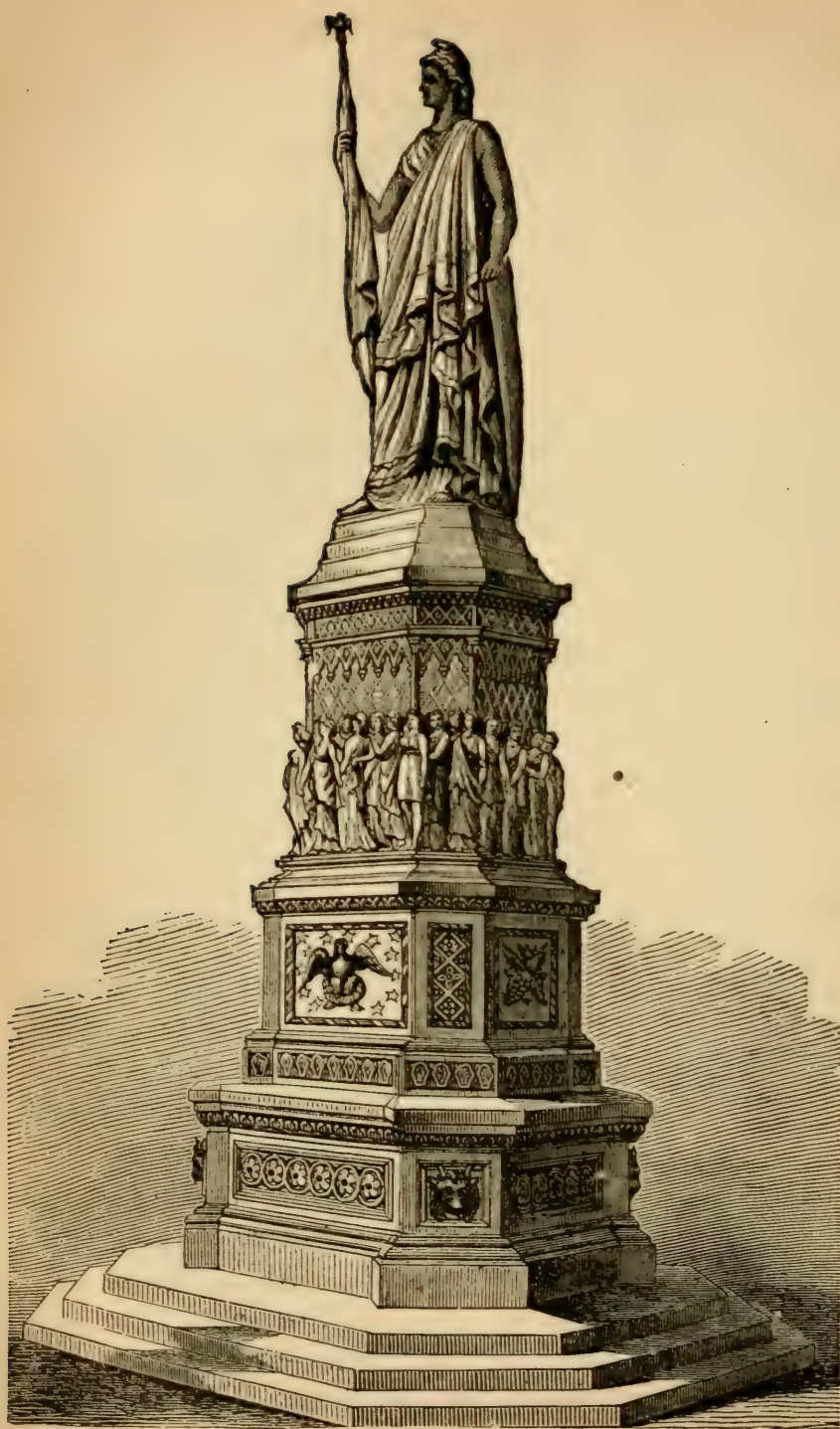
THE ROMAN CATHOLIC CENTENNIAL FOUNTAIN.

The demand for water for various purposes being so great within the Exhibition grounds, a separate system of water-works is provided, and the main supply of Philadelphia is thus relieved of what would be a heavy drain upon it. A large pump-house of brick is built on the shore of the Schuylkill, immediately south of Columbia bridge, and is supplied with powerful pumping engines of the most approved pattern. The water is pumped from the river at this point and forced up the

hill to the top of the tall Stand Pipe which rises back of Machinery Hall. The fall from the summit of this pipe gives it a force sufficient for all the purposes of the Exhibition. The works can supply 7,000,000 gallons of water daily to the buildings and grounds.

To the north of the temperance fountain, and between Fountain and State avenues, are a series of relief plans in miniature of Switzerland, Jerusalem, Paris and Naples, constructed by Colonel Liénard, a distinguished French artist. These plans are exact representations in miniature of the places named, each building being cut out and set up to appear as it does in the cities represented. These are among the most interesting of the minor sights of the Exhibition.

Immediately in the rear of Memorial Hall is the statue of Religious Liberty, erected by the Hebrew order of B'nai B'rith. It is the work of Ezekiel, an American sculptor of the Hebrew faith, and a native of Richmond, Virginia. Its cost was \$30,000. The statue is of marble, and together with the pedestal is twenty feet in height. The design is a group of two figures—the one colossal, eight feet in height, stands near the centre of the pedestal. It typifies the Genius of Liberty. It is a female figure in armor; a mantle fastened at the neck by an agraffe falls from the left shoulder to the left foot. The right breast and arm are uncovered. On the breastplate of the armor is wrought the American shield. The head is covered with the Phrygian cap bordered with thirteen stars. The left hand of the figure which holds the Constitution is supported by the fasces. The other figure of the group stands at the right side of the former; it is a youth, slightly draped, with face upraised; one hand of this figure is stretched to heaven and holding an urn in which burns the sacred flame. At the base of the group an eagle is represented, its talons buried in a snake, typifying the destruction of slavery. The idea conveyed by the group is Liberty protecting Religion, and in the idea, personified by Religion, it is intended to express in a universal sense the reliance on a divine power common to humanity. The pedestal



STATUE OF LIBERTY TO BE ERECTED IN INDEPENDENCE SQUARE.

is inscribed with suitable sentences from the Constitution of the United States.

A few feet west of the intersection of Fountain and Belmont avenues is the statue of Christopher Columbus, erected by the Italian residents of the United States. The statue is of Ravazzioni marble, and was executed in Italy by an Italian artist. It is of heroic size, and represents Columbus at the moment of the discovery of the New World.

On the western side of the lake stands a bronze statue of Elias Howe, the inventor of the sewing machine.

A number of soda water fountains are scattered through the grounds at convenient points. They are the property of Charles Lippincott & Co., of Philadelphia, and James W. Tufts, of Boston, who have the exclusive privilege of selling soda water in the buildings and grounds.

Six cigar pavilions, owned and conducted by W. A. Fleming & Co., are located in various parts of the grounds. They are one story in height, with observatories.

In the Belmont ravine, south of Agricultural Hall, is *The Hunters' Camp*, erected by the "Forest and Stream Publishing Company of New York." It is what is known as a permanent camp, and consists of a number of huts constructed of logs and bark. It is provided with all the appurtenances of a hunting and fishing camp, such as portable boats, sporting fire-arms, rods and lines, a kennel of sporting dogs, and specimens of game birds. At the margin of the camp, the stream which flows through the ravine has been converted into a small lake, and this has been stocked with game fish. The camp will be in charge of a number of experienced hunters, and will illustrate the various phases of a sportsman's life in the backwoods.

Near the southern edge of the grounds, above Machinery Hall, is a queer-looking locomotive with two antiquated railroad passenger cars attached to it. This is the "John Bull," an English locomotive, and the first ever used on the New Jersey Railroad. It is the property of the Pennsylvania Railroad Company, by which it is exhibited. The cars are the old-style coaches familiar to all whose fate it was to travel on the Camden &

Amboy Railroad twenty years ago. The entrances are on the side, and the cars are low and badly ventilated. There are no steps at the side, the platforms of the stations being in those days built on a line with the doors of the cars. On the roof of the car which serves as a tender to the locomotive is a large covered seat, resembling an old-fashioned buggy top. When these cars were used, a man sat in this seat with his back to the locomotive and his face to the rear of the train, and held the end of the bell cord in his hand. Another cord extended from his seat to the signal bell of the locomotive. He was thus enabled to see that the cars did not become uncoupled, and repeated the signals of the conductor to the engineer. The locomotive shown here was placed on the New Jersey Railroad in 1831. A comparison between this machine and the splendid locomotives on exhibition in Machinery Hall will show better than words the advance that has been made in railroad engine building.

On the north of the Main Building stands the *American Soldiers' Monument*, a colossal granite statue 21 feet in height, and weighing 30 tons.

At the intersection of Belmont and Fountain avenues is the *Ice-Water Fountain*, erected by the Grand Division of Sons of Temperance of the State of Pennsylvania. It is enclosed by a wooden pavilion with thirteen sides, representing a Greek temple, 25 feet in diameter and 36 feet high. The fountain is eight feet in diameter and is surrounded by a passage-way. The fountain is provided with twenty-six self-acting spigots, and is connected with a reservoir underground which is fed from the reservoir on George's Hill. The reservoir of the fountain has a capacity of 4000 to 5000 gallons of water, and can furnish an almost unlimited supply of ice-water, which is free to all.

A most interesting feature of the Exhibition is the Indian Encampment, which is located on a reservation in the Centennial grounds at the foot of George's Hill. Over 300 Indians are encamped here; and this number is made up by detachments of from four to eight from fifty-three tribes. Both sexes are

included, and the redskins are, in many instances, famous chiefs and their families. They were selected for their perfection of form and physical development, or for their distinguished deeds; so that they constitute the very aristocracy of the Indian nation. The object of the encampment is to show, in as perfect a degree as is now possible, the original inhabitants of this country and their mode of life. For this purpose they have with them a number of their lodges, their cooking utensils, weapons, agricultural implements, and the instruments by which their rude manufactures are carried on. They have also a number of ponys and dogs. They will carry on their various occupations, including the weaving of blankets and belts, the making of moccasins and clothing, baskets and bead ornaments, and the construction of pottery and stone implements. The Indians are in charge of George Anderson, a famous Texan guide and scout, whose romantic and daring adventures would, if written truthfully, make one of the most entertaining of volumes.

The various buildings located in the Exhibition grounds will be described in their appropriate places.

A ride through the grounds on the cars of the narrow-gauge railway is a necessity, but no one should omit the pleasure of seeing them on foot. There are so many objects of interest to linger over, so many exquisite bits of landscape, so many picturesque views of the buildings to enjoy, that it is only by taking a leisurely walk through these beautiful grounds that this pleasure can be tasted to its full.

CHAPTER XI.

THE MAIN BUILDING.

Description of the Main Building—A Monster Edifice—The Interior—A Magnificent Hall—Decorations—The Galleries—A Beautiful and Imposing Scene—Water-Closets—Restaurants—Fountains—Letter Boxes—Telegraph System—The Elevator—Classification of the Display in the Building—The American Department—The Great Organ—The Massachusetts Educational Exhibit—The Roosevelt Organ—The Paper Makers—The Book Pavilion—The Model Post-Office—The Cotton and Woollen Goods—The Carpet Rooms—American Pottery—Among the Iron Workers—The Fire-Arms Exhibit—Rich Costumes—The Telegraphic Display—The Gas Fixture Department—A Brilliant Display—The Jewellers and Silversmiths—The Moorish Pavilion—A Gorgeous Exhibit of Rare and Costly Objects—The Century Vase—The Cologne Fountains—The Furniture Display—Model Houses Completely Furnished—The Pianos and Organs—Beautiful Instruments—Concerts—Great Britain and Ireland—Magnificent Display of Silver and Plated Ware—Splendid Furniture and Church Ornaments—Beautiful Porcelains—Superb Pottery—Statuary—Process of Making Pottery—The Tile Exhibit—Rich Iron Work—Rare Furniture—A Royal Pavilion—Grand Display of Cotton and Woollen Goods and Linens—Jewelry—Splendid Carpets—The Book Display—The Graphic's Art Collection—Rich Stained Glass—A Gorgeous Show from India—The Canadian Exhibit—The Manufactures and Natural Products of the Dominion—The Educational Exhibit of Ontario—The Australian Exhibits—The Wonders and Resources of the Pacific Continent—Pyramids of Gold—Superb Photographs of Australian Scenes—Dust from the Gold Coast—Native Diamonds—The West Indian Display—France—The French Court—Rare Bronzes—Exquisite Porcelains—The Textile Fabrics of France—The Silk Court—Beautiful Laces—Statuary—Religious Groups—The Book Trade Exhibit—Fine Engravings—Fine Cutlery—Articles de Paris—Scientific and Philosophical Apparatus.

THE principal Exhibition buildings are five in number. Of these the largest is the Main Building. It is located immediately east of the intersection of Belmont and Elm avenues, and extends in a line from east to west, parallel with Elm avenue. It stands one hundred and seventy feet back from the north side of Elm avenue, at the north side of which the fence enclosing the Exhibition grounds

is placed. A broad, open space is thus left between the fence and the building. The building is in the form of a parallelogram, and has a length, from east to west, of eighteen hundred and eighty feet, and a width, from north to south, of four hundred and sixty-four feet.

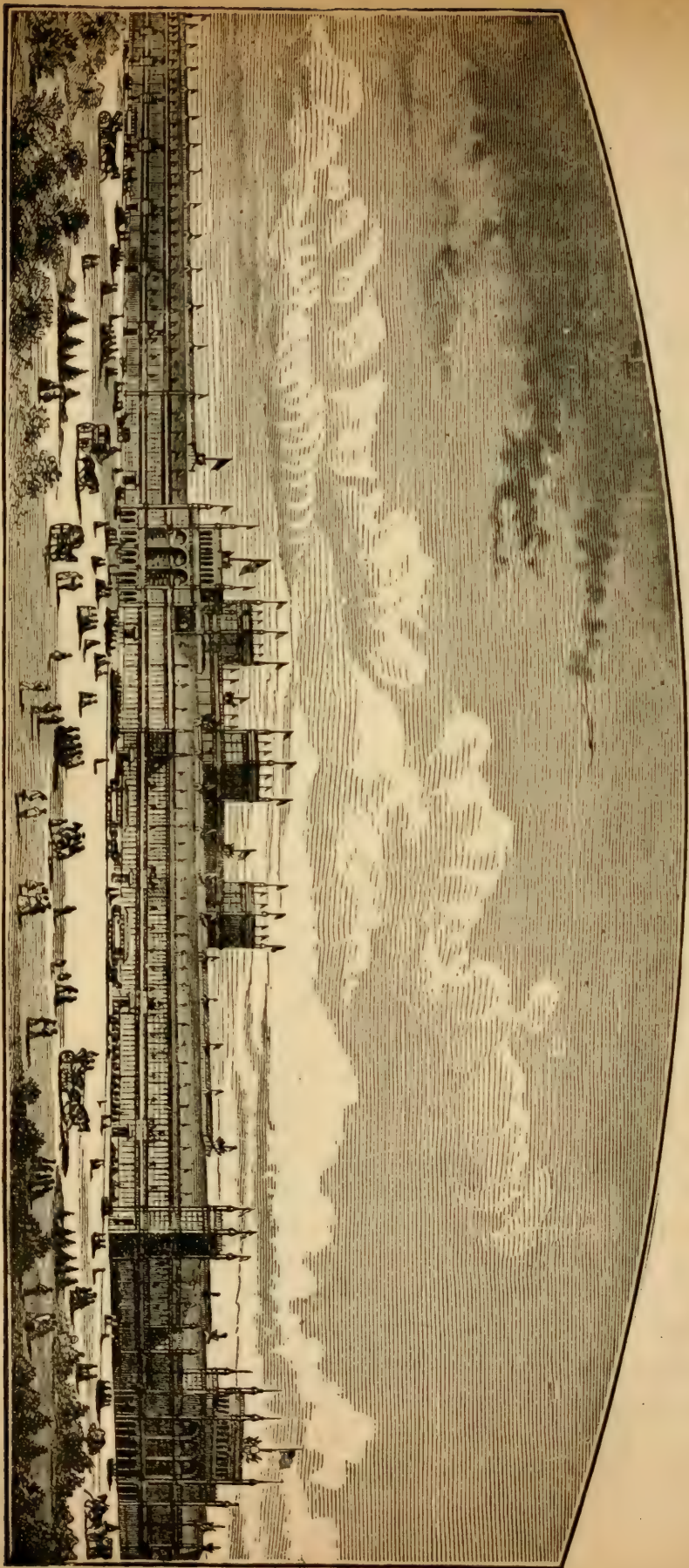
The larger portion of the building is one story in height, and shows the main cornice upon the outside at forty-five feet from the ground, the interior height being seventy feet. At the centre of the longer sides are projections four hundred and sixteen feet in length, and in the centre of the shorter sides or ends of the building are projections two hundred and sixteen feet in length. In these projections, in the centre of the four sides, are located the main entrances, which are provided with arcades on the ground floor, and central arcades extending to the height of ninety feet.

The main entrances are arranged as follows: The northern entrance communicates directly with Memorial Hall, which faces this portal. The east entrance is the principal approach for carriages, which may be driven up to the arcades, at which visitors alight. The doors at this end open upon the Park, the fence line extending from the northern and southern sides of the building. The southern entrance is the principal approach from the street cars which have their terminus on Elm avenue immediately before this door. The western doors open upon the esplanade at the main entrance to the grounds, and communicate with the Machinery and Agricultural Halls.

A tower, seventy-five feet high, rises from each of the four corners of the building, and between these towers and the central projections or entrances there is a low roof introduced, showing a cornice at twenty-four feet above the ground.

At the central part of the building the roof, for one hundred and eighty-four feet square, is raised above the surrounding portion. From the four corners of this elevated roof four towers, each forty-eight feet square, rise to a height of one hundred and twenty feet.

The building is the largest in the world. It covers an area of 936,008 square feet, or 21.47 acres, as follows:



MAIN BUILDING OF THE INTERNATIONAL CENTENNIAL EXHIBITION, PHILADELPHIA, 1876.

1880 feet in length and 464 feet in width.

Ground floor.....	872,320 square feet.....	20.02 acres.
Upper floors in projections.....	37,344	“ .85 “
Upper floors in towers.	26,344	“ .60 “
Total.....	936,008	“ 21.47 “

The ground-plan shows a central avenue or nave one hundred and twenty feet in width, and extending eighteen hundred and thirty-two feet in length. This is the longest avenue of that width ever introduced into any building. On either side of the nave there is an avenue one hundred feet in width by eighteen hundred and thirty-two feet in length. Between the nave and the side avenues are aisles forty-eight feet in width, and on the other sides of the building smaller aisles twenty-four feet in width.

In order to relieve the monotony which would have resulted from the continuation of the roof in an unbroken line, three cross avenues or transepts have been introduced of the same widths and in the same relative positions to each other as the nave and avenues running lengthwise, viz.: a central transept one hundred and twenty feet in width by four hundred and sixteen feet in length, with one on either side of one hundred feet by four hundred and sixteen feet, and aisles between of forty-eight feet.

The intersections of these avenues and transepts in the central portion of the building result in dividing the ground floor into nine open spaces free from supporting columns, and covering in the aggregate an area of four hundred and sixteen feet square. Four of these spaces are one hundred feet square; four one hundred feet by one hundred and twenty feet, and the central space or pavilion one hundred and twenty feet square. The intersections of the forty-eight feet aisles produce four interior courts forty-eight feet square, one at each corner of the central space.

The main promenades through the nave and central transept are each thirty feet in width, and those through the centre of the side avenues and transepts fifteen feet each. All other walks are ten feet wide, and lead at either end to exit doors.

The foundations of the building consist of piers of masonry

set solidly in the earth, and more than equal to the task of sustaining the immense weight which rests upon them. The superstructure is composed of wrought-iron columns, which support wrought-iron roof trusses. "These columns are composed of rolled channel bars with plates riveted to the flanges. Lengthwise of the building the columns are placed at the uniform distance apart of twenty-four feet. In the entire structure there are six hundred and seventy-two columns, the shortest being twenty-three feet and the longest one hundred and twenty-five feet in length. The aggregate weight is 2,200,000 pounds.

"The roof trusses are similar in form to those in general use for depots and warehouses, and consist of straight rafters with struts and tie bars. The aggregate weight of iron in the roof trusses and girders is 5,000,000 pounds.

"This building being a temporary construction, the columns and trusses are so designed that they may be easily taken down and erected again at another site.

"The sides of the building for the height of seven feet from the ground are finished with brickwork in panels between the columns; above the seven feet, with glazed sash. Portions of the sash are movable for ventilation. The roof covering is of tin upon sheathing boards. The ground flooring is of plank upon sills resting upon the ground, with no open space underneath.

"All the corners and angles of the building upon the exterior are accentuated by galvanized iron octagonal turrets, which extend the full height of the building from the ground level to above the roof. These turrets at the corners of the towers are surmounted with flag-staffs, at other places with the national eagle.

"The national standard, with appropriate emblems, is placed over the centre of each of the four main entrances. Over each of the side entrances is placed a trophy showing the national colors of the country occupying that part of the building.

"At the vestibules forming part of the four main entrances variegated brick and tile have been introduced.

"The building stands nearly due east and west, and is lighted

almost entirely by side light from the north and south sides. Louvre ventilators are introduced over the central nave and each of the avenues. Skylights are introduced over the central aisles."

The edifice was erected by Mr. R. J. Dobbins, one of the most eminent builders of Philadelphia. He was the constructor of the Public Ledger Building, and his two great works in the Exhibition grounds, the Main Building and Memorial Hall, are enviable monuments of his skill and energy. In the construction of the Main Building 7,000,000 feet of lumber, and nearly 8,000,000 pounds of iron were used, and the services of three thousand men were employed. Underneath, and extending through the edifice, are four miles of water and drainage pipes, the service in this respect being perfect. Gas pipes are introduced through the building, which is lighted at night by "reflectors" suspended from the roof, and placed beyond the possibility of communicating fire to the structure or its contents. Hydrants are placed at numerous points in the hall, and are so arranged that the water can be turned directly upon a fire, which can be extinguished before it has gained any advantage.

The light in the building is excellent, and all exhibitors are placed on an equality for showing their goods by the admirable arrangement of the hall in this respect.

The cost of the Main Building was \$1,580,000. The engineers and architects were Henry Pettit and Joseph M. Wilson. The wrought and cast-iron work was manufactured by William Sellers & Co., of the Moor Iron Works; the wrought-iron was furnished by A. & P. Roberts, of the Pencoyd Rolling Mills; the cast-iron was furnished by Morris, Tasker & Co., of the Pascal Iron Works; and the iron work was erected by the Watson Manufacturing Co. The foundations of the building were begun in the autumn of 1874. On the 8th of May, 1875, the erection of the iron work was begun, and was completed on the 2d of December, 1875. The other work was carried on with rapidity, and the building was completed early in February, 1876, and on the 14th of that month was delivered by the contractor to the Board of Finance.

The Main Building is in all respects the most imposing structure of the Exhibition. It is not as beautiful as Memorial Hall, but is superb in its massiveness and in the perfection of its details. In spite of its immense size, it is light and graceful in appearance, and seen from any commanding point, with its thousands of flags and streamers fluttering in the air, its beautiful proportions rising grandly and clearly against the sky, it constitutes an object which long holds the gazer's eye and elicits his warmest praise. The exterior is painted in light-brown colors, with tasteful ornamental lines in red and other harmonizing hues.

The interior is decorated handsomely. The prevailing colors are the lightest shade of blue and cream-color, and the decorations are in bright, cheerful tints which blend well with these hues. There is nothing sombre or gloomy about the edifice, and the taste displayed in the selection and arrangement of colors is highly to be commended.

Around the inner cornice small circular panes of stained glass have been set, decorated with the arms of the United States, the various States and Territories of the Union, and the different nations of the world, and with subjects relating to the arts and sciences.

The four sides of the central transept are ornamented with elaborate pieces representing America, Europe, Asia, and Africa. Each of these paintings is forty feet in width and fifty feet in height, and embodies a group emblematic of one of the four quarters of the globe. At the east end of the transept is the American group. America is represented by Columbia holding in her hand the staff surmounted by the Liberty Cap, while beneath is the word America and the numerals MDCCLXXVI. On the right is the bust of Washington, on the left that of Franklin. As a background the national colors are most prominent, and on either side are the flags of the old original thirteen States. The whole forms a very pretty picture, and cannot but attract great attention.

Immediately opposite, on the west side of the transept, is the European group. Europe is represented by a female figure at

the top, while beneath, on the right, is the bust of Shakespeare, and on the left that of Charlemagne. A horse and lion are conspicuous objects, and back of all are the flags of the Great Powers.

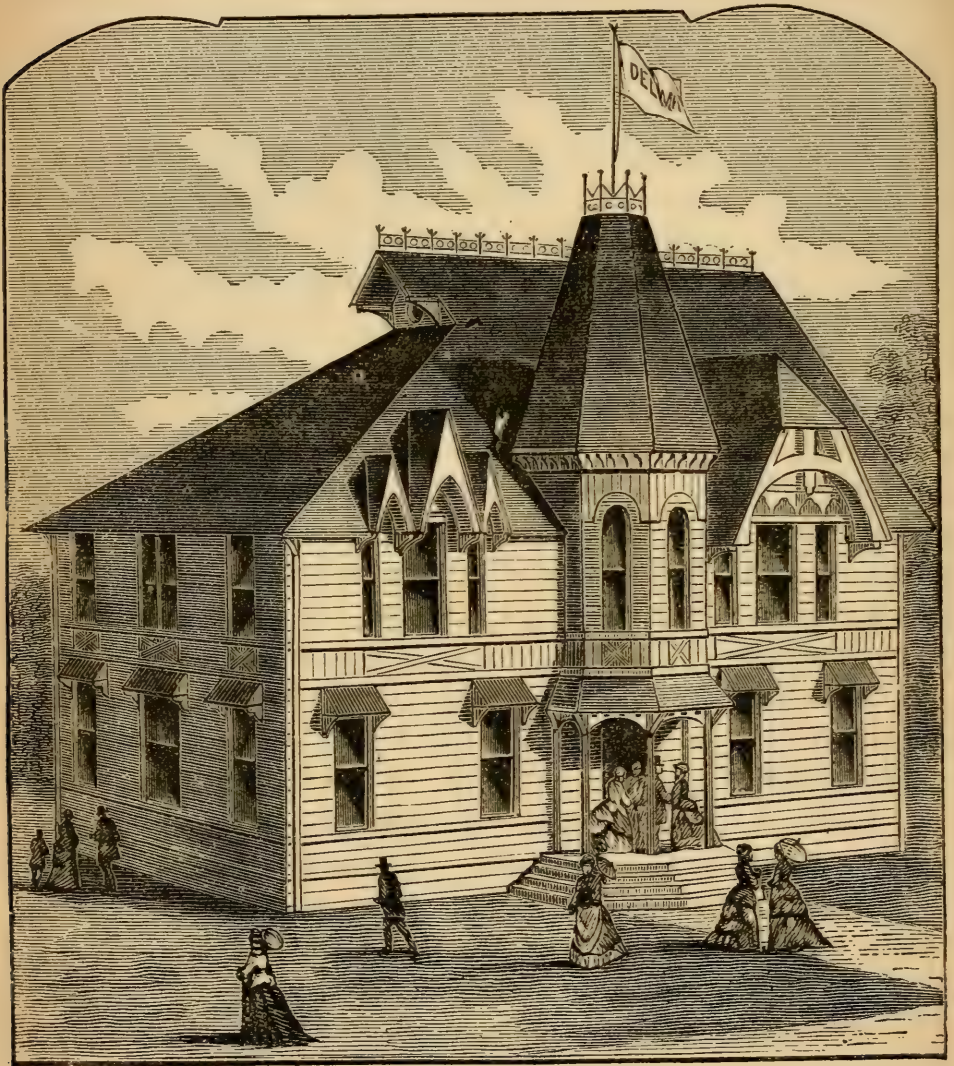
At the south end of the transept is the Asiatic group. Asia is represented by a female figure, seated between the busts of Confucius and Mahomet. Chinese and Japanese emblems are conspicuous, and the flags of the Asiatic nations are tastefully grouped.

At the north end of the transept is the African group. Africa is represented by an Egyptian female, and beside her are the busts of Rameses and Sesostriis. Characteristic oriental scenes and the flags of the African states make up the background.

In each of the groups the products of the respective great divisions of the world are conspicuously displayed. The effect of the pictures is very fine, and they harmonize well with the grand assemblage of beautiful objects in this portion of the building.

At each end of the building and at convenient points on the sides, galleries are provided from which the visitor may survey the brilliant scene below. From the gallery on the south side, or from the towers at the centre of the building, one may enjoy at leisure the magnificent view which the hall and its contents afford. Before him and on either hand is the vast interior of the hall stretching away for hundreds of feet, brilliant and imposing with its rich decorations, and astounding and delighting the gazer with its vastness and its perfect adaptation to the purposes of the Exhibition. At the north and east ends the magnificent organs which occupy the main galleries constitute two of the most beautiful ornaments of the hall. The scene on the floor below is enchanting. The long lines of magnificent show-cases, the sumptuous pavilions of the various foreign nations, the gorgeous display of objects of use and beauty, the infinite variety of forms and colors, all tend to make up a picture to be remembered for a lifetime. At various points fountains send their clear jets of water into the air, the strains of music

come floating up to you from below, or the deep tones of the great organs lull your senses into a delicious repose, and the perfumes of the cologne-fountains fill the air with a luxurious languor. You hear the sharp click of the telegraph telling of the restless, busy energy that has produced all this luxury, and are reminded



DELAWARE STATE BUILDING.

by it that you are not yet in Fairyland. The aisles and passageways are thronged with sightseers, and as you lean over from your lofty perch you may see the costumes of many nations mingled in the crowd. The stalwart Indian stalks through the

hall, as emotionless as a stone, and concealing his wonder at all this magnificence beneath a stolidity which you may admire but cannot equal. The small but alert Japanese, with his loose dress caught up as if it were an obstacle rather than a convenience, the "Heathen Chinees," with his almond-eyes and long pig-tails, his comical dress, and his "ways that are dark and tricks that are vain," the turbaned Turk in his gay costume, the Egyptian with his red *tarbush*, and the brilliantly uniformed attachés of the European Commissions, all jostle each other in the throng below you. From your elevated stand you look down upon the wealth of the world. All the nations have sent their rarest and choicest objects here, and in this vast collection you may study the civilization and customs, and read the history of the dominant part of the human race.

The building is provided with every possible comfort for visitors. Seats are scattered through the aisles, and in many of the pavilions and enclosures, chairs and cushioned settees are furnished by the exhibitors. At each end of the main aisle and at the ends of the central transept are water-closets and wash-rooms for visitors. These are in charge of attendants and are kept scrupulously clean. They are free to all. Cloak-rooms and umbrella-stands, provided by the Department of Public Comfort, are located under the arcades at the four main entrances to the building. Umbrellas, water-proofs, or parcels of any kind are received at these stands, and taken care of for a small sum. The owner is given a metal check for his property, and this must be presented when the article is claimed.

Restaurants are located at the north and south ends of the central transept. They are provided with lunch counters as well as with tables, and those who desire merely a light lunch can be accommodated at moderate prices.

Several fountains are located in the main aisle. One of these is a tall, ugly series of iron basins from which the water flows down into the pool below. It is the largest fountain in the building, and does not reflect much credit upon the taste that provided it.

Soda-water stands are established at several prominent points

in the main aisle and the central transept. The fountains, as a rule, are very handsome, being constructed of white or colored marble with silver mountings. Soda is sold at the national price of ten cents a glass, and the fountains all appear to do a good business.

Wheel-chair stations are located at each end, and near the centre of the main aisle. In the main aisle, also, are stands for the sale of the official catalogues and guide books.

Telegraph offices are established at one or two points in the main aisle, from which messages may be sent to any part of the world. The American District Telegraph Company have the sole privilege of operating these offices, and have introduced their admirable messenger service system into the grounds.

Scattered through the building are a number of iron letter boxes, established by the United States Post-Office Department, from which collections are made at stated times. These boxes are to be found in all the main buildings and at prominent points in the grounds. A separate mail service is provided for the Exhibition, which has its own postmaster and officials, and letters are received and despatched by the Centennial Post-Office, which is located in the Government Building, with the greatest promptness.

In the centre of the building a large music-stand has been erected. Concerts are given here daily by the finest bands in the country. Concerts are also given by the proprietors of the great organs at stated times during the day, and these, with the performances of the eminent musicians engaged by the various manufacturers of pianos to show the merits of their respective instruments, furnish a rich treat to the lover of music.

On the south side of the main aisle, about half-way between the eastern entrance and the transept, is the establishment of the Centennial Safe Deposit Company. It is enclosed with a stout iron cage, and contains a number of large safes and desks and tables. The company receive on deposit valuables and papers, and guarantee their safe return upon demand. A charge is made for the keeping of each article according to a fixed tariff. The safes of the company are fire-proof.

In one of the central towers a steam elevator conveys visitors, who may wish to make the ascent, to the roof or to the galleries of the tower. Stairways are provided for those who do not wish to use the elevator. The elevator is of the most approved con-



CONNECTICUT STATE BUILDING.

struction, and is exhibited as one of the most perfect specimens of its kind.

The greatest care and forethought have been exercised to render the Exhibition buildings perfect in the conveniences they offer to visitors. Advantage has been taken in this respect

of the experience of all the other great World's Fairs, and it may be safely asserted that our own presents improvements upon each and all.

In a work like this it is simply impossible to describe each feature of the Exhibition in detail. We can only refer to it in general terms, dwelling merely upon the objects which constitute its principal attractions.

The Centennial Commission at an early day divided the objects to be exhibited into seven departments, as follows :

- | | |
|---------------------------|------------------|
| 1. Mining and Metallurgy. | 5. Machinery. |
| 2. Manufactures. | 6. Agriculture. |
| 3. Education and Science. | 7. Horticulture. |
| 4. Art. | |

These were assigned to the five principal buildings, the first three being included in the Main Building. The classification and grouping of these is as follows :

I.—MINING AND METALLURGY.

<i>Classes.</i>	<i>Groups.</i>
100—109....	Minerals, Ores, Stones, Mining Products.
110—119....	Metallurgical Products.
120—129....	Mining Engineering.

II.—MANUFACTURES.

200—205....	Chemical Manufactures.
206—216....	Ceramics, Pottery, Porcelain, Glass, etc.
217—227....	Furniture, etc.
228—234....	Yarns and Woven Goods of Vegetable or Mineral Materials.
235—241....	Woven and Felted Goods of Wool, etc.
242—249....	Silk and Silk Fabrics.
250—257....	Clothing, Jewelry, etc.
258—264....	Paper, Blank-Books, Stationery.
265—271....	Weapons, etc.
272—279....	Medicine, Surgery, Prothesis.
280—284....	Hardware, Edge Tools, Cutlery, and Metallic Products.
285—291....	Fabrics of Vegetable, Animal, or Mineral Materials.
292—296....	Carriages, Vehicles, and Accessories.

III.—EDUCATION AND SCIENCE.

300—309....	Educational Systems, Methods, and Libraries.
310—319....	Institutions and Organizations.
320—329....	Scientific and Philosophical Instruments and Methods.
330—339....	Engineering, Architecture, Maps, etc.
340—349....	Physical, Social, and Moral Condition of Man.

At least one-third of the twenty-one and a half acres of the floor-space of the Main Building is occupied by the United States. These seven acres are filled with a rich and beautiful display, and the national pride of the native visitor is sure to find satisfaction in the imposing and splendid appearance made by his country. In one department especially, the show-cases in which the articles on exhibition are displayed, the United States lead the world. "Wandering through the long avenues, lined by cases of strikingly novel designs and elaborate workmanship, one may be wearied by the endless variety, and may find the simple uniformity of the French section a relief; but he cannot fail to be impressed by the fertility of resource, the original genius for decorative effects, and the evident liberality of expenditure displayed; and he will remark a certain unstudied harmony in dissimilarity produced by the kaleidoscopic mingling of diverse colors and forms, and may find in it a faithful reflex of our composite American life."

The United States.

We begin our inspection of the contents of the Main Building in our own country, and in doing so glance first at the great gallery which crosses the eastern end over the entrance doors. Stairs ascend to this gallery from either side of the entrance. A sign over the doorway at the foot of the stairs informs us that the gallery is occupied mainly by the Educational Department of the State of Massachusetts. This display occupies the northern and southern sections of the gallery, the central portion being given to the well-known Boston organ-builders, Hook & Hastings, who display here one of their grand organs and a number of smaller instruments.

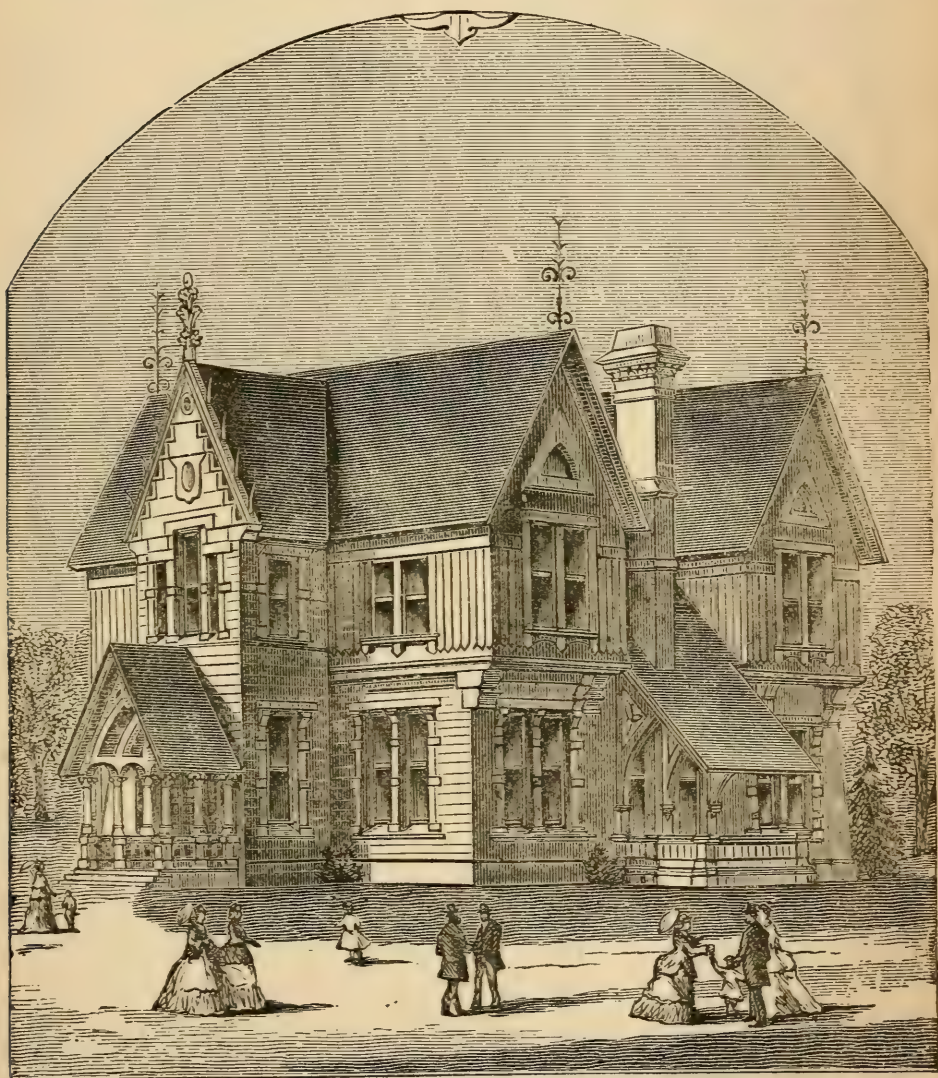
The great organ is one of the "features" of the Exhibition, and, as seen from the floor below, forms a beautiful ornament of the great hall. It was erected at an expense of \$15,000, and is intended as an exposition of the art of organ building as practised by its makers, who stand confessedly in the front rank of their class. It embodies the latest improvements and the highest excellence of an instrument of this style, and comprises

four manuals, each of 58 notes, 47 speaking-stops, 12 mechanical registers, including couplers ; 10 pedal movements for combinations, etc., including a crescendo pedal controlling the full power of the organ. The total number of pipes used in it is 2704. There are three bellows. The two main ones have vertical feeders, and can supply 3600 cubic feet of compressed air per minute. The bellows are blown by an hydraulic engine located on the main floor beneath the organ. Frequent concerts are given by the organist in charge, and these performances never fail to draw crowds of enthusiastic and appreciative listeners. The organ is 40 feet high, 32 feet wide and 21 feet deep. Passages traverse it in every direction at different altitudes, and are connected by stairways giving ready access to every part for inspection and adjustment.

In the two rooms on the right and left of the great organ, the Commonwealth of Massachusetts displays her public school system, and does so by exhibiting models and specimens of the furniture, apparatus, and text-books used in her schools of all grades, and by showing the actual work of the pupils of the various schools as set forth in their examination papers. These papers are bound in handsome volumes, each of which is prefaced by a sketch of the system used in the various classes, and the questions propounded to the pupils at the examinations. The result is highly creditable to the State. A good display of drawings from the Boston High and Evening Schools is to be seen here. Plans and models of the principal schools of the State are also exhibited, and the workings of the industrial schools is shown in the apparatus used, and some of the achievements of the pupils. Harvard contributes a volume of fine photographic views of the various departments of the university, and several of the leading colleges of the State are shown in the same way. The public libraries of the State are also to be seen here in photography, and with pardonable pride the Bay State offers for inspection a series of finely executed photographic views of its principal cities. A handsome case is filled with volumes of reports, showing the present condition of the various public institutions of the State.

For some reason a series of fine etchings by Mrs. Eliza Greator, of New York, have been placed in this portion of the building. They are justly admired by visitors, and should be included in the art collection in Memorial Hall.

The gallery at the south end of the central transept contains



OHIO STATE BUILDING.

the educational departments of a number of the States. These are Maryland, Ohio, Indiana, Illinois, Michigan, Maine, New Jersey, New Hampshire, Rhode Island, Iowa, Wisconsin, Tennessee and Connecticut. The system adopted for showing

the workings of their school systems is similar to that of Massachusetts. Nearly all the States mentioned show models, plans, or photographic views of their public schools of various grades. Samples of school furniture are also shown, and some of the States exhibit models of their educational buildings so constructed as to display the interior as well as the exterior arrangement.

At the eastern end of the gallery the colored schools of the South make a creditable showing of their progress. Their examination papers evince a success in the work of imparting education to the negro race which is gratifying in the highest degree, and a presage of greater triumphs in the future. In this department is a large oil-painting of the jubilee singers of Fiske University, Nashville, whose concerts have made them familiar to the people of this country and Great Britain, and have earned for their school a sound basis of financial success.

The gallery at the north end of the transept is occupied by the second of the great organs of the Exhibition. This is the Roosevelt Organ, and was built by Hilborne L. Roosevelt, of New York, whose magnificent instruments have made him famous throughout the country. The organ in the Chickering Music Hall, in New York, is of his make, and is acknowledged by lovers and professors of music to be one of the most perfect and delicious instruments in existence. The organ exhibited here has fifty-six stops and pedals, and has three manuals and a pedal bass. It embodies a number of improvements peculiar to the organs of this maker, notable among which is the mechanism placed directly over the key-box by which the organist can readily change the combination on any of the pedals. By this novel arrangement, from one stop to the full organ can be set on any pedal. The organ is threefold in its construction, and consists of the Main Organ in the north gallery, the Electric Echo Organ, and the Electric Suspended Organ, all played from one key-board. The Electric Echo Organ is placed in the English Tower, and is connected by about 200 feet of wire cable to the keys of the great organ; its bellows being blown by an electric engine. The Electric Suspended Organ is suspended from the roof about twenty feet in front of the organ gallery. This

is connected also by a cable of insulated wires to the keys of the great organ; and its bellows are blown by an electric engine. The main bellows are blown by two of Jaques' Improved Brass Hydraulic Engines, situated directly under the organ gallery.

This instrument is exhibited as a specimen of the American school of organ-building, and is intended to illustrate the advancement made in the art in this country. Though founded on the best schools of modern European organ-building, still the improvements introduced are for the most part entirely new and American in their origin. Though there are several larger instruments here and in Europe, still it is claimed that none so complete, musically, and in the application of pneumatic, tubular and electric action, has been constructed hitherto. In the matter of voicing, the builder's school has been carried out as heretofore, and it is to be hoped with equal success. It aims at individuality in the different stops, and at the same time a perfect blending. So that when the full organ is used there will be a powerful united body of tone, in which the foundation stops are not lost and the mixtures are not too prominent. The reeds in this organ (which were made here) may be said, in character of tone, to be between the French and English schools, and are remarkably effective.

The effect of the celebrated Vox Humana in the Chickering Hall Organ (by same builder), New York, is here reproduced in the Electric Echo Organ, which is placed in the English Tower, as hitherto described. The wonderful imitation this makes of a chorus of voices singing in the distance is perfect. The cost of the organ was \$20,000.

The gallery over the western entrance is occupied by the American Society of Civil Engineers, who make a fine display of engineering, drawings, photographs and models, the object of the display being to show the progress and triumphs of the science of engineering in this country.

Having finished our glance at the galleries, we now descend to the floor and begin our inspection at the eastern end of the American Department, which is also the eastern end of the building.

Near the eastern doors the manufacturers of paper display their wares. The exhibit is very good, and the articles are arranged in the most tasteful and attractive manner. The show-cases used are beautiful specimens of skill in cabinet-making. The Philadelphia and New York stationers also exhibit fine specimens of book-binding. Close by, Lange & Little, of New York, exhibit some beautiful specimens of fine printing.

Immediately under the gallery the State of Maine displays her cotton goods, and here a register is kept in which visitors from the Pine Tree State may inscribe their names and addresses as a means of enabling their friends to find them.

At the southeast end of the hall is a large two-story pavilion, constructed of black walnut, and towering high above the line of show-cases. It is one of the handsomest pieces of work in the building, and is a model of neat and systematic arrangement. It is divided into sections, each of which is fitted up with convenient cases, in which the various leading publishing houses of the United States display their wares. All the great houses, such as the Harpers, Appletons, Scribner, Osgood and Houghton are represented, and a number of minor firms help to swell the representation. The Harpers and others display handsomely bound sets of their standard works, and the Appletons make an imposing display of their magnificent illustrated publications. The bindings shown by this house are sumptuous, and exhibit this branch of American industry in its highest form. Lippincott, of Philadelphia, has a superb case of black walnut, with cushioned seats around it, just without the pavilion, and displays many fine samples of printing and binding.

Near the western end of the pavilion the American Bible Society have erected a beautiful case of polished oak, in which they exhibit copies of the Scriptures printed in every language. The work is done at the Bible House in New York, from which millions of copies of the Word of God have been scattered over the world. Versions in twenty-nine different languages are shown. Some rare and valuable copies of old Bibles are also shown,

among which are the Bibles owned by the great poet John Milton and the martyr John Rogers. A copy of the first Bible printed in the English language in America is also shown. It was printed by Robert Aitken, in Philadelphia, in 1781. Prior to the Revolution all English Bibles used in the colonies were brought from England. During the war they became very scarce. In 1778 Robert Aitken undertook the production of an American edition of the Scriptures. In March, 1782, the Pennsylvania Assembly loaned Mr. Aitken £150 to assist in carrying out the enterprise. September 10th, 1782, Congress recommended this edition of the Bible to the inhabitants of the United States, "as subservient to the interest of religion and progress of arts in this country." The paper was made in Pennsylvania, and the Bibles were printed and bound in Philadelphia.

Merriam & Co., of Springfield, Massachusetts, have a case in the second story of the book pavilion containing an interesting collection of the works of Noah Webster, with copies of the various editions of the great dictionary. Close by the proprietors of the famous Riverside Press, of Cambridge, Massachusetts, exhibit specimens of their fine printing, including an exquisite portrait of Longfellow.

Descending to the floor again we soon find ourselves opposite the Yale Lock Manufacturing Company. Here are to be seen beautiful specimens of this famous lock, including a superb chronometer bank-safe lock. The company have erected a large and complete model of a post-office, provided with several hundred of their patent lock-boxes, such as are used by the government in the post-offices of our principal cities. The office on exhibition here is complete in every respect, and could be put into operation at any moment.

Immediately opposite is a large case in which James W. Scott & Co., of New York, display a classified collection of all the postage stamps of the world.

Returning eastward, but still keeping south of the main aisle, we notice a beautiful assortment of floor cloths by the American Linoleum Company, of New York. The designs of these

goods are very beautiful. The fabric is manufactured by a peculiar process out of cork and linseed oil. It is softer and more durable than oil-cloth, and the foot falls as noiselessly upon it as upon a carpet. It is as yet a new industry, but bids fair to become an important one.

We now reach the main aisle, near the eastern doors. Here is collected the display of cotton, woollen and silk goods of American manufacture. In all three departments the exhibit is very fine. Nearly all the great New England factories are represented—in some cases by separate exhibits, and in others by collective exhibits of the products of all the mills in a single town. Great praise is due the exhibitors for the handsome and liberal manner in which they have displayed their goods. The show-cases in this section are among the finest in the building, and the arrangement of the goods is tasteful and striking. The group is the largest in the building, and, with the exception of a few from Philadelphia, the exhibitors are mainly from New England. The cotton and woollen mills of the West and South are but poorly represented, and this is all the more to be regretted, as they have made such marked progress of late years as to render them formidable rivals of the Eastern mills. A contrast between the articles displayed here and those exhibited in similar sections by the foreign countries cannot fail to be gratifying to the American visitor.

To the north of this section the carpet-makers of New England, New York and Pennsylvania have erected a triple row of pavilions, open on one side, in which an extensive and beautiful collection of American-made carpets is shown. Except in the most costly styles, woven in a single piece, this young American industry compares more than favorably with its older competitors from Europe. The designs are handsome and tasteful, the workmanship good.

On the south side of the main aisle, above the department of textile fabrics, the hardware and cutlery firms of the country make their display. The collection of cutlery compares well with that of the great English manufacturers, and few visitors will fail to notice the immense Centennial knife and fork ex-

hibited by the Beaver Falls Cutlery Company, of Pennsylvania. The exhibit of tools and hardware of all kinds is complete and attractive, and merits a careful study.

Alongside of the hardware men Mr. Charles W. Spurr, of Boston, has erected a small but handsome pavilion, lighted by



MASSACHUSETTS STATE BUILDING.

a crystal chandelier. The inner walls are decorated with polished woods prepared by a patent process. The wood is sawed to the thinness of soft paper and is then glued to harder paper, which is pasted on the walls in the usual manner, after

which the wood surface is subjected to a high polish. This system of house decoration is very beautiful, and is rapidly becoming popular in this country.

On the south side of the hall, near the eastern end, is the display of American pottery and porcelain. It is creditable on the whole, but does not compare with the display made by either of the leading European nations, or by China or Japan. The exhibits in this line are therefore modestly placed in a corner. They include excellent white stoneware from Trenton, New Jersey, and some excellent terra cotta specimens from the same State, and an abundance of rich brownware from Liverpool, Ohio. The collection also contains some fine animal specimens from Phoenixville, Pennsylvania. The Greenwood Pottery Company, of Trenton, New Jersey, show a small model of a brick pottery, and specimens of the clay in the various stages of manufacture.

Below the pottery collection are a number of tall marble and granite shafts and monuments, and beyond these are the carefully executed maps and charts of the Geological Survey of New Jersey, with a number of specimens of the geological formations of the State.

Close by, the Stephens Institute of Technology, of Hoboken, New Jersey, displays an interesting collection of scientific apparatus.

The iron, steel and slate men of the country make an imposing display of ores and manufactured metals. The Cambria Iron Works of Pennsylvania has a stately Masonic arch constructed of solid T rails; and close by the famous Lucy Furnace, of Pittsburgh, is shown in a small but complete model. The display of ores, pig-metals, manufactured articles, nails, bars and other products is extensive and interesting.

The Keystone Bridge Company, of Pittsburgh, exhibit alongside of the irons a fine model of the famous draw-bridge constructed by them over Raritan bay for the Central Railroad of New Jersey.

Crossing towards the main aisle again, we notice a handsome case in which the American Watch Company, of Waltham,

Massachusetts, display an extensive assortment of handsome watches in gold and silver cases. A few feet north of this case the Elgin Watch Company, of Elgin, Illinois, exhibit their watches and a number of samples of the wheels and other movements used in them. In Machinery Hall we shall see the process by which these watches are made by machinery. Our country is rapidly taking rank with the older nations for the excellence and beauty of its watches, and the accuracy and rapidity with which they are made by machinery has challenged the admiration of the civilized world. The two companies mentioned above are the most prominent parties engaged in this branch of our industry, and are the best prepared to show it to the thousands who gaze in wondering admiration at the process as shown in Machinery Hall, and at the results as exhibited here.

Crossing the main aisle we notice along its northern side a formidable row of Gatling, Parrott and breech-loading guns. The cannon are all fine specimens of the classes to which they belong, and attract much attention. The display of small arms is also very fine, and shows some interesting improvements in sporting weapons.

North of the arms collection are the burglar and fire-proof safes. All the principal safe makers are represented, and the display is exceptionally good and interesting.

Close by the safes, Ives, Blakeman & Co., of Bridgeport, Connecticut, have a large stand with an extensive collection of mechanical toys. Several persons are kept busy displaying the operations of these ingenious contrivances, and a crowd of delighted little folks is always gathered about the stand.

To the west of this stand is a large case containing a handsome display of military uniforms and ornaments, exhibited by Schuyler, Hartley & Graham, of New York. The most conspicuous object of this collection is a figure of the Emperor William, of Germany, in a superb uniform.

We now enter a region of ready-made clothing and ladies' costumes. The principal display here is made by the well-known houses of John Wannamaker & Co., of Philadelphia,

Devlin & Co., and Madame Demorest, of New York, and Homer, Colladay & Co., of Philadelphia. The last-named house exhibits a number of wax figures dressed in the most beautiful and costly costumes.

Continuing on the north side we notice a handsome display of terra cotta ware. Galloway & Graff, of Philadelphia, exhibit some beautiful vases, tazzas, pedestals and fountains. The collection of articles for homelier uses is also very good.

Along the western end of the American department on the north side is a capital exhibit of ropes and cordage, from the most delicate pack-thread to the stoutest cables. We have now reached the extreme limit of the American department on the north side, and returning to the main aisle cross to the south side at the soda fountain which stands opposite the Mexican court. In the front line on the south side of the main aisle are the vaults of the Centennial Safe Deposit Company, looking the very picture of strength and security, and next above this the Seth Thomas Company, of Thomaston, Connecticut, display a large collection of American clocks. The clocks of this company are admitted to be fully equal to the best French time-pieces, and the writer can testify to their excellence from many years' use of them. The designs are tasteful and handsome, and the clocks being made by machinery, are sold at about half the cost of a first-class foreign clock.

Immediately above the clocks is the Telegraph Department, fronting also on the main aisle. Here are telegraphic and electrical instruments of every description. The Western Union Telegraph Company have here a handsome case of French walnut, showing the workings of a "telegraphic switch," for shifting the magnetic current from wire to wire. A complete collection of telegraphic apparatus is to be seen here, and a thorough illustration is given of the system by which the extensive lines of this company are operated.

On the main isle, just west of this section, are handsome models in silver of the palace cars of the Pullman and Woodruff Companies.

The display of glassware along the main aisle is very beauti-

ful and quite extensive. The finest specimens of cut and ground glass are to be seen here. This department extends southward from the main aisle, and embraces also a large collection of plainer and more substantial articles of glass. Wheel-



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ing, West Virginia, and Pittsburgh, Pennsylvania, the two principal seats of American glass manufacture, are well represented, and New Jersey and Massachusetts also make excellent displays.

Just beyond the glassware, on the main aisle, is a magnificent display of fine gas fixtures by the leading manufacturers of New York and Philadelphia. This is one of the most notable features of the American department, and many of the articles exhibited are exceedingly beautiful. The collection takes up a great deal of room, and shows to what a surprising extent the taste of our people for luxury and variety has gone in the single direction of apparatus for light. No foreign country has anything to compare with us in the extent of the display in this line.

The next department is that of the silver and plated ware. The firms represented here are principally from the Eastern States, and the display of the finest grades of plated ware is large and magnificent. The various manufacturing firms represented appear to have exhausted their ingenuity in the production of rare and beautiful articles for display at the great Exhibition. The cases are rich and massive, and are in strict accordance with the beautiful objects they contain. The Meriden Britannia Company and Reed Barton have exceptionally fine displays, many exquisite bronzes being among that of the former firm. The show-cases of these firms are the most elegant in the whole American section.

The jewellers make a fine exhibit of their wares, Bailey & Co., of Philadelphia, being the first whose display attracts us. They have a handsome pavilion, in which is a large and beautiful collection of jewelry and precious stones.

At the intersection of the main aisle with the central transept is a crescent-shaped Moorish pavilion of beautiful design, and ornamented in warm, rich colors. It is in all respects the most beautiful structure in the Exhibition, and is occupied by Messrs. Tiffany & Co., and Starr & Marcus, of New York, Caldwell & Co., of Philadelphia, and the Gorham Manufacturing Company, of Providence, R. I. These houses display the richest and most costly articles to be seen in the Exhibition. The finest jewels are to be seen here in profusion. The cameos exhibited by Starr & Marcus are among the most exquisite in the world, and are selected with skill and taste. Tiffany & Co. exhibit a

superb collection of precious stones in the most beautiful settings, and Caldwell & Co. display a line of beautiful jewelry and silver ware which are the envy of many a fair gazer upon them. The Gorham Manufacturing Company, famous as the first manufacturers of silver and fine plated ware in America, fully sustain their well-earned reputation by their display here. The principal object of their exhibit is the magnificent "Century Vase," which stands at the entrance to their section. It is of solid silver, and is four feet two inches in height. The length of the vase is five feet four inches. The vase rises from the centre of the base, which rests upon a slab of polished granite, and both the vase and base are ornamented with a number of groups, the figures of which stand out boldly and beautifully. Each of these groups is emblematical. The following is the description of this splendid work of art given by its proprietors:

"The pioneer and Indian represent the first phase of civilization. Groups of fruit, flowers, and cereals, the natural products of the soil. The slab of polished granite signifies the unity and solidity of the government on which rest the thirty-eight States. The band of stars, thirty-eight encircling the piece, thirteen in front, represent the present and original number of States in the Union. The group on the left is the genius of war, with the torch in her right hand, while the left grasps the chain holding the 'dogs of war' in check. A shell has shattered the tree, and a broken caisson wheel is half buried in the debris on the battle ground. The group on the right is the lion led by little children, musical instruments and flowers strewn on the ground, all denoting perfect peace and security. The medallion in front is the angel of fame, holding in one hand the palm branch and laurel wreath, and in the other a wreath of immortelles and a portrait of Washington. The medallion on the opposite side is the genius of philosophy and diplomacy, with one hand resting on the printing press, and with the other holding a portrait of Franklin. On either side of the plinth is a head of the bison, the king of the prairie. Having now passed the Revolution and witnessed the restoration of peace, the nation commences

its growth, and hence, from the plinth the vase rises. The front panel of the vase represents genius, ready to inscribe on the tablet the progress made in literature, science, music, painting, sculpture, and architecture. On the reverse panel, genius is ready to record the advancement in commerce, mining and manufactures. The cover of the vase bears the group in which the story culminates. The figures denote Europe, Asia and Africa, while the central figure, America, is inviting and welcoming all nations to unite with her in celebrating the triumph of her Centennial year. The cost of the vase was \$7000.

Passing to the southward we find near the central transept an extensive display of chemicals and paints. These are grouped tastefully, and with their brilliant hues constitute one of the most attractive features of the American department. Conspicuous in this collection is the exhibit of John Lucas & Co., of Philadelphia, one of the largest and best known houses in the Union, whose extensive works are located at Gibbsboro', New Jersey. The display of this house embraces a fine exhibit of white leads and zines, colors, paints, varnishes, and window-glass, both white and colored. Some magnificent specimens of zinc ore are displayed, and the processes of manufacturing white lead and white zinc are shown in the simplest and clearest manner. The high reputation enjoyed by this house, and the extensive display made by it, render it one of the most conspicuous "features" of the Exhibition. To visitors interested in or familiar with this branch of American industry it is unnecessary to add that this is the representative house of the Union in this line. Close by is the handsome exhibit of printing inks made by Charles Enu Johnson & Co., of Philadelphia, the largest and best known manufacturers of these articles in America. The goods are displayed tastefully, and a crowd of the members of the "fourth estate" may always be seen gathered around the stand, inspecting the wares which experience has taught them are unexcelled by any of their class in the world.

Going eastward again we notice the handsome display of the cologne and perfume makers of this country. The firms represented are from New York and Philadelphia chiefly. Burnett

has a pretty black marble fountain which sends up a constant jet of cologne water, and where the tired visitor may enjoy the delightful privilege of bathing his forehead with the refreshing liquid. Wench, of New York, has a handsome bamboo pavilion, from which perfumed sprays are thrown, filling the air with their delicious fragrance. Lundborg, of New York, has a tall, gayly decorated Moorish pavilion, in which he makes an extensive and attractive show of his perfumes.

Going eastward still we enter the furniture department, and it requires but a glance to see that the West has offered a sharp competition to the East in this, its specialty. There are some fine specimens of furniture from the West, the State of Michigan being especially well represented in this respect. The display of furniture is very large, and some of the finest specimens are from Columbus, Ohio. The makers of the finest grades of furniture in New York and Philadelphia have gone to great expense in setting up their exhibits. Many of them have constructed rooms of the usual size, which are handsomely carpeted, provided with curtains, doors, frescoed ceilings and walls, and superb gas fixtures and mantel-pieces. The rooms are open on one side. With the homelike surroundings thus provided the furniture shows to the best possible advantage. It is of the most elaborate description, and is richly upholstered. Smith & Campion, of Philadelphia, exhibit a suite of four rooms, consisting of a parlor, library, dining-room and chamber, fitted up magnificently and furnished with the most costly articles. Some rich specimens of interior decoration are also shown by the firms represented here, prominent among these being the decorations furnished by Marcotte & Co., of New York. George J. Henkels, of Philadelphia, has a fine chamber suit of maple, made from the wood of an old maple tree that grew in Independence Square. It was over 200 years old when it was cut down.

North of the furniture collection is the display of philosophical and surgical instruments. It is quite large, and the articles compare well with those in the English, French and Swiss departments. Among the most conspicuous objects of this col-

lection is the fine equatorial transit instrument exhibited by Messrs. Fouth & Co., of Washington, D. C.

From the scientific department we pass on and find ourselves in the piano-forte collection. All the principal firms are repre-



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sented. Steinway, Chickering, Weber, Knabe, and a score of well-known names greet us at every turn. Each maker has sent his best instruments, and the highest skill has been exercised in the construction of the beautiful frames in which these are placed. All the spaces occupied by the piano makers are en-

closed, and many of them are covered with elegant pavilions, richly carpeted, and provided with seats for visitors. Several of the leading firms have engaged distinguished performers to show off their instruments, and one is sure of always hearing some brilliant pianist while lingering in this department. The collection covers a large area and is very complete. In the collection of Wm. Knabe & Co., of Baltimore, there is a harpsichord made for Charles Carroll of Carrollton, a century ago.

Alongside of the pianos is the display of cabinet organs, which, though smaller, is quite as handsome as that of the stringed instruments. George Wood & Co. and Mason & Hamlin exhibit some beautiful instruments, and, as far as exterior ornament goes, are certainly in advance of their competitors. Two pipe organs are on exhibition close by.

We have now completed our survey of the American department of the main hall, and must turn our attention to the display made by foreign countries.

Great Britain and Ireland.

First among these nations is the kingdom of Great Britain and Ireland, the mother land of our young republic. The space occupied by the British section lies north of the main aisle and west of the central transept, and is not enclosed by a pavilion or any other structure. Each exhibitor was obliged to provide and set up his own show-case, and these, while always executed in a thorough and workmanlike manner, are as simple and unadorned as possible. They are painted black with gilt mouldings. Professor Archer, of the British Commission, states as a reason for this, that his country has learned from its great experience in international exhibitions, that too great a display in the furniture detracts from the appearance of the exhibits proper. A banner of red, with the words "Great Britain and Ireland," is suspended from the roof over the entrance.

At the entrance, opposite the music stand in the central transept, is a rich display of silver and plated ware by Elkington & Co., silversmiths, of Birmingham. The collection embraces many articles of great value and beauty, and is the gem of the

British exhibit. Some splendid bronzes are included in it, and one may pass hours in inspecting the objects displayed by this enterprising firm, whose exhibit is valued by the *London Times* at \$500,000. One of the most beautiful articles to be seen here is the "Helicon vase," in reponssé and richly enamelled, which is valued at \$30,000. The reproductions in electro-deposit of ancient works of art from the South Kensington and British Museums are especially interesting.

Adjoining this splendid display is the space occupied by Messrs. Cox & Co., of London, who exhibit a large and handsome collection of church plate, wrought-iron and brass work, church furniture of various kinds, and some fine ebonized and carved oak furniture.

Going north, along the eastern end of the British section, we reach the display of porcelain, pottery and majolica ware. In her porcelain England fairly rivals France, the first nation in Europe in the extent and beauty of this manufacture, and in pottery and majolicas leads the world. The display of porcelains made by A. B. Daniell & Son, of London, is extensive and very beautiful, including ornamental vases, candelabra, splendid dinner, dessert, and tea sets. Brown, Westhead, T. C. Moore & Co., of Staffordshire, also make an elegant display.

In pottery, England excels all the nations in her display. The collection includes vessels of all kinds for household, scientific and commercial uses, drainage and objects of ornament, statuary, etc. Some of the statues and busts are remarkably fine, and the display, on the whole, is beautiful and creditable in the highest degree. One of the most complete and conspicuous displays is that of Bates, Walker & Co., of Burslem, in Staffordshire, from whose circular we take the following account of the process of the manufacture of the articles displayed here, which is identical with that followed in all pottery establishments.

"The raw materials of the manufacture are commonplace enough—certain clays from Devon and Cornwall, China stone and flint being the principal. The latter is calcined, broken up, and ground with water in a large cylindrical tub, lined at the

bottom with hard siliceous stones. From the central vertical shaft working in this tub project arms between which large loose stones are placed, and the mill being, set going, these move round on the bed-stone, grinding the flint until it forms with the water a creamy fluid. The China stone is treated separately, but in a similar manner, and the clay is mixed up with water and then made to pass through silk sieves of exceeding fineness, having a reciprocating movement, and which arrest impurities in the clay, as also the coarser particles. Next the ingredients, in their semi-fluid state, are mixed by measure in large underground tanks, from whence the 'slip,' as the mixture is now called, is pumped into long bags of a coarse cotton fabric. A number of these bags being filled, they are placed side by side in a press actuated by powerful screws, and thus subjected to powerful compression the water filters through the bags in a perfectly pure and limpid state, the solid clayey compound being left behind. The dough-like masses removed from the bags are thrown into a pug mill with an internal spiral arrangement of knives, which cut up the clay, and it is gradually forced through an opening in the mill in a perfectly homogeneous and workable condition. Having now seen how the fine plastic material which is to form the body of the ware is prepared, the next thing is to follow it into the potters' domain pure and simple. There are two methods by which the clay is made to assume the required shapes, viz., by *throwing* and *moulding*. The former operation requires considerable manual dexterity, and is accomplished by the aid of the potter's wheel, the essential part of which is simply a horizontal revolving disc. The potter places on it a lump of clay, and while it revolves, fashions it with his fingers into any shape that may be desired. Articles thus formed in the rough are, when partially dried, finished by turning them in a lathe. A less expensive method of fashioning the clay is that which involves the use of plaster of Paris moulds. Such things as teacups, which require to be of a uniform thinness, are made by pressing thin sheets of clay into the moulds, which absorb the superficial moisture of the paste, and allow the articles to be removed without injury.

Ewers, jugs, teapots, and articles of somewhat intricate shape are formed in moulds which are in several parts. Spouts, handles, etc., are moulded, and afterwards joined to the body of the vessel by liquid 'slip.' Coming now to that part of the factory where plate making is going on, we notice that the plan adopted combines both the processes of throwing and moulding. A mould turned to the shape of the upper surface of the plate is placed on the revolving disc of the potter's wheel, and a thin sheet of paste is pressed on to it; then, while in movement, the potter places in position a tool representing a section of the plate, and this pares down and shapes the clay to its own outline. Their edges having been finished off, the plates, still on the moulds, are placed in a hot closet on shelves which slowly revolve, and by this ingenious arrangement the drying of the goods to the desired degree is well accomplished. Being formed, the articles, of whatever kind, must be 'fired,' and they are accordingly packed in coarse earthenware vessels called saggars, and these are piled one on the other in the oven until it is quite full. The furnaces are now lighted, and an intense heat kept up for about forty hours; the oven is then allowed to cool, and when the saggars are withdrawn they contain the ware in the state known as 'biscuit.' At this stage we are introduced to the decorative processes of the manufacture. The patterns are printed on peculiarly soft and thin tissue-paper from copper-plates, and are transferred to the ware by applying the printed tissue-paper to its surface and rubbing it on. The biscuit being of a highly absorbent nature, readily receives the pattern, and the paper is got rid of by the application of water. Gilt decoration is largely used, and the patterns are printed on the ware in a kind of size, the gold alloy being afterwards dusted on. Before heating the gold is quite dark; during that process it changes to a dirty yellow, and is only brought out in all its resplendency by the operation of burnishing with agate. The more elaborate patterns are hand-painted on the ware, and there is scope here for the display of the most artistic execution. Each color has to be separately applied, and the many heatings the ware has to undergo to bring out the tints exposes it to such

risk of injury that other manufacturers are disinclined, in consequence, to apply this variety of decoration to their goods. After the biscuit has received its ornamentation, it is dipped in a glaze, and the final heating it undergoes vitrifies the latter, and calls up the natural vividness of the colors forming the patterns."

The tile makers have a fine collection. Several of the structures enclosing the spaces of the exhibitors are constructed entirely of tiles bearing handsome paintings, and finished in the most perfect style of the art. The famous house of Minton & Co., of Stoke-upon-Trent, have perhaps the most perfect collection in the group. The designs are fine, and the workmanship of the highest class. Maw & Co., and Craven, Dunnill & Co., of Shropshire, also make a fine show of geometrical mosaic, encaustic, and majolica tiles, among which are a number of fine reproductions of ancient works, as well as modern designs.

The collection of tiles is chiefly near the north side of the British section, at its eastern end. Returning from this to the front line, we notice, near the collection of Elkington & Co., the exhibit of ornamental iron-work, made by Barnard, Bishop & Barnard, of Norwich. The most prominent object of this collection is the fine pavilion of iron-work filled with the wares of the firm. The South Kensington Museum has purchased duplicate portions of this building as specimens of the finest styles of ornamental iron-work of the nineteenth century. Just above this collection a superb crystal chandelier, suspended over a fine display of cut glassware, attracts our attention. It is the handsomest in the building.

Passing northward, we reach the collection of furniture. A special feature of this department consists of the handsome and comfortable-looking brass bedsteads, of which quite a number are displayed.

Messrs. James Schoolbred & Co., of London, have one of the handsomest pavilions in the Exhibition. It is divided into a number of chambers furnished with exquisite taste in the Anglo-Indian style. These cozy apartments are exceedingly attractive,

and visitors are loud in their praise of their arrangement. This house also exhibits some fine furniture of the Jacobean and Queen Anne styles. A fine display of decorative furniture is also made by W. Scott Morton, of Edinburgh. The furniture exhibit includes many beautiful specimens of interior decoration and adornment, and is a fair representation of a school from which our own decorators might learn much.

The collection of ornamental mantels, fire-places, and heating apparatus stands in the rear of the furniture. It is handsome, but in point of convenience and completeness is inferior to that displayed by our own country in the annex to the Main Building.

A conspicuous feature of the British collection is the magnificent tent, or booth, constructed of purple velvet hangings, and ornamented with a superb collection of specimens of embroidery and needlework. An exquisitely worked scroll over the entrance tells us that this is the pavilion of the "Royal School of Art and Needlework." This school is under the especial patronage of Her Majesty, Queen Victoria, and the greater part of the embroideries displayed are the work of the royal family or of ladies of noble birth. A screen worked by the Princess Christian attracts much attention from visitors. The hearty interest displayed by the Queen of England in our Exhibition, and the generous manner in which she has personally taken part in it, merits and should receive the cordial acknowledgment of our people.

Against the northern wall of the building are suspended two seamless pieces of oil-cloth, each about twenty-five by forty-five feet in size. They are from Kirkaldy, in Scotland.

Returning once more to the main aisle, we enter the department of cotton and woollen goods. The exhibit in these lines is immense, and extremely varied. The articles are of the best quality, and are displayed in the most artistic manner. Linens also abound here, and excite, as they well deserve, the praise of all visitors. A case of magnificent Irish poplins is exhibited by Pim Brothers, of Dublin. They are among the most beautiful fabrics on exhibition in the Main Hall, and a crowd of

visitors is always collected around them. The famous Balbriggan Hose Manufacturers make an interesting and complete exhibit near by. The display of laces, silks, ribbons and silk fabrics is also very fine. The department of textile fabrics includes England, Scotland and Ireland, and fully sustains the claims of the British kingdom with regard to this branch of her manufactures. A conspicuous portion of this exhibit is the handsome display of satteens and cloths for tailors' use, made by Ferguson Brothers, of the Holme Head Works, near Carlisle. These goods are of the most superior class, and are considered unequalled in the Exhibition. The well-known house of William F. Read, of Philadelphia, is the American representative of this firm. Hitchcock, Williams & Co., of London, display a case of handsome and complete toilettes for ladies, elegantly set off on wax figures.

Farther north is the collection of jewelry. This is handsome in many respects, but is not such a display as was hoped for from Great Britain. One or two cases are especially noticeable. James Aitchison, of Edinburgh, has a pretty exhibit of Scottish jewelry in gold and silver, Highland ornaments, and precious stones found in Scotland; and William Gibson, of Belfast, has a fine display of Irish bog-oak jewelry.

The exhibit of cutlery, tools, and hardware is large, and includes London, Sheffield, and Birmingham. The articles offered are of the finest quality, and are tastefully arranged. In this department the Telegraph Construction and Maintenance Company exhibit a collection of specimens of the different submarine cables laid by them in various parts of the world.

The display of scientific and philosophical instruments is extensive and unusually good. All the leading makers are represented, and the specimens on exhibition are among the very best in the building. Some fine watches and chronometers and a number of musical instruments are to be seen near by.

In the alcoves along the northern wall of the building the carpet makers display their finest products. Here are to be

seen the most beautiful Axminster, Wilton, and Indian carpets and rugs that Great Britain has ever sent to this country. The larger ones, woven in a seamless piece, are suspended against the wall, and may be examined readily by the lovers of these beautiful fabrics.



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A fine collection of fire-arms is to be seen near by, together with apparatus for hunting and fishing, a collection deeply interesting to sportsmen.

At the western end of her section Great Britain has grouped

the exhibits of her publishers, and her educational display. The latter is not large, and does not do justice to the country which has done so much for the cause of knowledge. Her great universities are not represented at all, and her excellent school system is scarcely shown, a circumstance much to be regretted.

The book-men have but a slight representation. Cassell, Petter & Galpin, of London, show a good collection of their illustrated works, and Messrs. Bradbury, Agnew & Co., of London, the proprietors of *Punch* and the *British Encyclopædia*, have a handsome pavilion, at the entrance to which Mr. Punch stands, bowing a welcome to his visitors. The publications of this house are well displayed, and the lover of books will not fail to notice with especial pleasure the rich and exquisite editions of Shakspeare to be seen here.

Immediately opposite, the *London Illustrated News* and the *London Graphic* unite in an enclosure along the sides of which are displayed specimens of their illustrations and fine cut-printing. The *Graphic* exhibits a number of original sketches and complete drawings of scenes and incidents in the late Franco-German war, and a series of blocks showing the different stages of the process of wood engraving. A small printing press worked by a gas-engine is used to strike off the illuminated circulars of this firm.

The display of stained glass windows is more complete and beautiful than has ever been made by England at any International Exhibition. These exhibits are to be found chiefly in the windows of the gallery at the south end of the transept, where they show to the best advantage.

One-fifth of the entire space of the Main Building is taken up by Great Britain and her colonies. Of this, Great Britain and India occupy one-half.

India.

The exhibit made by British India is under the control of the British Commissioners, and is chiefly from the India Museum in London. It is neither as extensive nor as fine as

the exhibit made at Vienna. Specimens are exhibited, showing everything the natives eat, wear or use. The grains of India, the cotton, and other products are arranged in cases according to a regular classification, and are deserving of a careful study. Native dyes are also shown, together with a quantity of silks, raw, floss, spun, and woven, and the cocoon from which the silk is obtained. Some of the silks are beautifully embroidered, and some fine specimens of gold and silver cloth are to be seen here. The collection of laces and shawls is very attractive. A set of magnificently carved black furniture is included in the collection, and attracts much attention. Jewelled weapons and native arms are among the showiest features of the display. A collection of native pottery and metal work, lacquered ware, boxes made of porcupine quills and sandal wood, some magnificent native fans inlaid with ivory and precious stones, some singular drawings in mica, and a number of Hindoo antiquities are also to be found in this department. Some fine India carpets are displayed. Delhi sends some handsome embroidered work, and Bombay a rich collection of jewels. Along the sides of the space are photographs of scenes in India, and of the native races of that country. From the display made here one may gather a fair idea of the people of India and their habits, and contrast them with those of other lands. This, indeed, should be the main object of the intelligent visitor, and the various Commissions have arranged their exhibits for the purpose of facilitating this study.

The Dominion of Canada.

Canada occupies almost as much space as the mother country. The exhibit is made under the direction of three Commissioners from the Dominion and one from each of the Provinces. The collection is made up of articles from the Provinces of Quebec, Ontario, Manitoba, Nova Scotia, New Brunswick and British Columbia. The Dominion contributed the sum of \$100,000 to the expenses of the Exhibition, and the Provinces an equal sum. The goods are displayed in neat uniform walnut cases, but little expense having been gone to on this account.

The extent and variety of the exhibition of Canadian manufactures will surprise even those who suppose themselves well versed in these matters. Cotton and woollen goods, hosiery, boots and shoes, drugs and chemicals, sewing machines, hardware, saws, pianos, and wearing apparel of all kinds, are displayed in profusion and of admirable qualities. The leading ship-builders on the coast send models of the vessels they have constructed, and Quebec and Toronto send fine specimens of furniture. The Canadian potters send handsome specimens of stoneware, which they claim is equal to the best Staffordshire ware; and from Montreal there are finely wrought marble mantels, which the exhibitors assert are equal in quality and workmanship to anything produced in Italy. A large display of furs is made, the Hudson Bay Company taking the lead in this respect.

A specialty is the exhibit of the geological department, in which the ores and petroleum of the Dominion are most prominent. A lump of plumbago, six feet by four in size, is exhibited. It is said to be the largest ever mined. New Brunswick contributes some fine specimens of red granite. A case of clothing of skins ornamented with bead-work, and articles of adornment of bead-work, made by the Indians of Canada, attracts much attention.

The Province of Ontario displays with great pride and minuteness her educational system. The plan adopted is similar to that of the States of the American Union, and no pains have been spared to make the showing complete. Models and drawings of the principal educational establishments are exhibited, together with the text-books used, and specimens of the pupils' work. A handsome collection of philosophical apparatus and maps is embraced in the exhibit.

Altogether Canada has good cause to be satisfied with her display, and the careful observer may learn much that is new to him of the progress of our northern neighbor.

The British Colonies.

Of the space allotted to the dependencies of Great Britain,

Canada has three-sixths, the Australian colonies two-sixths, and the remainder is divided among the African and American colonies.

New South Wales.

The Australian colonies exhibit many interesting objects. New South Wales, which lies in the southeastern portion of that continent, has endeavored to show by her display the extent and variety of her resources. Fine photographs of Sidney, the capital, said to be the largest ever taken, constitute a prominent part of the exhibit, and show to the visitor what a stately city has grown up in the far-off country which but a generation back was almost unknown.

The exhibit of wool is very large, and fairly represents the extent and importance of this branch of Australian industry. An extensive collection of mineral specimens, including copper, antimony, iron, gold and kaolin, is shown, among which is a pyramid formed of blocks of coal and samples of all the carboniferous specimens discovered in the country. A number of lumps of tin ore, and blocks of refined tin, show what New Zealand can do in the mining of this metal, and a lofty obelisk of gilt shows the amount of gold that was taken from the country from 1851 to 1874, which was 8,205,232½ ounces, valued at \$167,949,355.

Samples of silk and silk cocoons, and a number of specimens of the work of the natives of the country, are shown. The fine timber which forms so prominent a part of the exports of the colony is shown in a number of excellent specimens of sections of trees. A large block of kerosene shale is to be seen, from which the kerosene oil used in the colony is manufactured.

The whole exhibit is deeply interesting and instructive. It is arranged with great care and judgment, and is a fair showing of the resources and progress of the country it represents.

Queensland.

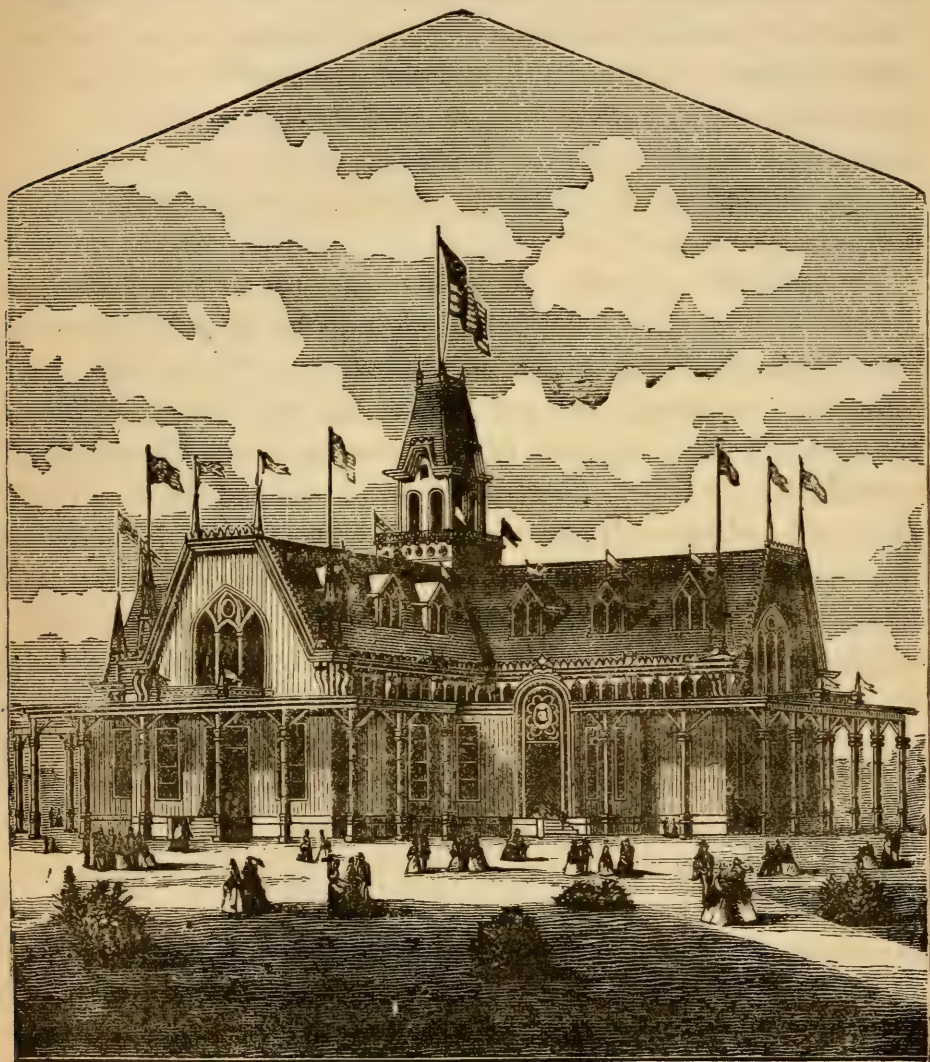
The exhibit from Queensland is contained in an enclosed apartment, on the north side of the British space, immediately

opposite the New South Wales section. It is in charge of Mr. Angus Mackay, of the *Queenslander* (the leading journal of the colony), a gentleman who has identified himself closely with the progress of this far-off country. It is in all respects one of the most interesting in the building, and is so admirably arranged that it does not fail to attract throngs of inquiring and appreciative visitors. Queensland occupies the northwestern part of Australia, and is a rapidly-growing and thriving colony. It originally formed a part of the colony of New South Wales, but was separated from it and given an independent administration some years ago.

The visitor's attention is at once drawn to a tall obelisk covered with gilt, which shows the amount of gold exported from Queensland between 1868 and 1875. It was sixty-five tons forty-one pounds and six ounces, and was valued at \$35,000,000. A fine collection of gold-bearing quartz is arranged around this obelisk. The collection of minerals is very complete, and embraces all that are found in the colony. There are specimens of tin, copper, arrowroot, woods, oils, silk, timber and antimony. The production of tin is increasing every year, and now exceeds that of gold. Indeed, the principal supply of the tin used by the civilized world is now drawn from Queensland. Several lumps of copper ore are exhibited, weighing five tons in the aggregate, and twenty-two different kinds of wood are shown. The botanical collection is very rich. Some fine native sugars are exhibited, and the display of wool is large and of an excellent quality. A case of native implements and clothing, exhibiting the dress and habits of the native Australian, forms an interesting part of the collection. Black wall tablets are suspended around the enclosure showing the mining, grazing, agricultural and geological statistics of the colony, and below these is an extensive array of paintings and photographs illustrative of the country and its inhabitants. The whole exhibit is so arranged that the colony and its resources can be understood almost at a glance.

Victoria.

The colony of Victoria occupies the southeastern corner of Australia, and covers an area of about 88,198 square miles. It



COLORADO AND KANSAS STATE BUILDING.

has a population of about 820,000. The capital is Melbourne, one of the largest cities in Australia. It is better provided with railways than any of the Australian colonies, and its people are well educated, education being free, secular, and compulsory.

The exhibit of this colony embraces a display of her mineral

resources, including fac-similes of enormous nuggets of gold found in her rich gold fields; a classified collection of rocks, minerals and fossils, illustrative of the geology, mineralogy and mining resources of Victoria; and a collection of gems and precious stones, consisting of diamonds, blue sapphires, oriental emeralds, rubies, aqua marines, topazes, spinels, beryls, opals, garnets, tourmalines, etc. A number of specimens of chemical preparations from Australian products will be found in this section, and the display of home-made pottery is excellent. Specimens also are shown of the manufactures of the colony in cotton and woollen goods, and silk threads and raw silk produced in Victoria. Samples of paper made from different barks are shown, also a collection of fine photographs. The Australian climate is the most favorable in the world to photography, and all the specimens from that continent are very fine. The grains and other agricultural products, the wools, coffee and native wines, are also well displayed. A small exhibit is made of the educational system of the colony, and also of the work of the penal institutions. Around the walls of the enclosure are hung a number of photographs and paintings of places and scenery in Victoria.

South Australia.

This is one of the largest of the Australian colonies, and lies south of Queensland and west of New South Wales. It comprises an area of 914,730 square miles, about one-third the size of the United States, and has a population of 210,699. It is rapidly increasing in population and wealth. Its principal exports are wool, wheat and copper. The exhibit of the colony includes specimens of gold quartz, copper ores, iron ores, bismuth and malachite, olive oil, native wines, the native woods, barks, grains, and other vegetable products, wools and raw silks. Articles made by the native Australians are also exhibited. Fine photographs of Adelaide, the capital, and various places in South Australia, are hung around the enclosure.

New Zealand.

The colony of New Zealand consists of the three islands, known as the North, South and Stewart Islands, and the several neighboring small islands, all of which lie in the Pacific ocean, to the southeast of Australia. The total area is about 100,000 square miles; the population about 299,514. The exhibit of the colony is not very large, but includes specimens of the ores—such as copper, lead, zinc, manganese, iron and coal—found in the islands. The principal feature of the exhibit, however, is the display of paintings and drawings representing the country and its inhabitants; the models of its public works and the large photographs of scenery and places in the colony. There is also an interesting collection of Maori weapons and implements.

The Cape of Good Hope.

The colony of the Cape of Good Hope comprises an area of about 201,000 square miles, and has a population of 776,158, of which 187,439 are whites. The arrangements of the exhibit of the colony are exceptionally good. The display includes some rich specimens of copper ore, black oxide of manganese, diamonds, saltpetre and coal; native articles of dress; native jewelry and weapons; specimens of the wines and brandies made in the colony; leather, wool, mohair, agricultural products, ivory, skins, and specimens of the birds and animals of the Cape. Here also are photographs and paintings of the scenery of the country.

The Gold Coast.

The exhibit of the Gold Coast colony is small, but well arranged. It embraces some fine specimens of gold dust and native ornaments of gold; skins of the wild animals of the African coast; native idols, clothing, weapons and other articles.

Jamaica.

The island of Jamaica has fitted up a small pavilion, in which it displays its favorite rums and sugars, its coffee, cotton, medicinal barks, hemp and native woods.

The Bermudas.

In the small pavilion appropriated to the Bermuda islands a handsome collection is gathered, consisting of shells, corals of the most exquisite forms, palm-leaf baskets, mats and fans, and native woods

The Bahamas.

The Bahama islands display some beautiful specimens of shell work, large shells, native woods, tobacco, cotton, beeswax, and tough fibres of the native trees of the islands.

Trinidad.

Trinidad's display is small, and consists mainly of specimens of the agricultural and mineral products of the colony, and a number of samples of the native manufactures.

British Guiana.

The exhibit of this colony consists principally of sugars, rums and specimens of the reptiles found in the colony.

Tasmania.

The collection of Tasmania is small, but interesting, and represents the native products, the mineral and the agricultural resources of the colony, with photographs and paintings of scenes and places in the island.

Taken as a whole, the British display is larger and better than that at Vienna, and the colonies make an exhibit which is gratifying and instructive in the highest degree.

France.

The space occupied by France lies on the north side of the building, immediately east of the central transept, extending from the main aisle to the north wall. It is about one-half as large as the space assigned to Great Britain. The section is unenclosed, and the cases are simple but perfectly constructed. They are invariably painted black, with ornamental lines of

gilt, and with the names of the exhibitors above in gilt letters. This uniformity and simplicity were prescribed by M. de Somerard, the Director-General of France, for all International Exhibitions. He established this regulation at the Paris Ex-



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position in 1867, and has enforced it ever since. It has the good result of preventing persons from losing sight of the beauty and excellence of the goods displayed in their admiration of the cases. The elegant simplicity of the French Department is, however, very pleasing.

The principal entrance to the French section is at the intersection of the main aisle with the central transept, opposite the music stand. Here, in a semi-circular space, is a collection of exquisite bronzes and articles in gilt and verd antique. The gem of the whole collection is a mantel-piece of black marble fifteen feet high, ornamented with statues and high reliefs in gilt and verd antique bronze. It has no rival in the Exhibition. Back of the front line one finds a rich and beautiful display of antique furniture, cabinets, etc., all of which are very attractive, and many of which are of great value as works of art.

Close by is the display of porcelain and pottery. This is the largest portion of the French exhibit, and by far the most attractive. There are four collections of porcelain proper, and six of faience and majolica. The porcelains are arranged along the central transept, and face the English display in friendly defiance, being separated from it only by the broad walk. In this department France is absolutely peerless among the nations of Europe, and the rare beauty and extent of her display will delight all lovers of beautiful objects. The famous house of Barbizet & Son, of Paris, exhibit a number of their matchless reproductions of Palissy ware, each article being worthy of careful study. Another house exhibits only works in imitation of old faience. Jules Houry & Co., of Paris, display a collection of exquisite china and faience, and some artistic furniture. Paul Blot, another well-known dealer, has an exhibit of the most delicate and beautiful glassware for use and ornament. Pelletier & Son, of St. Just on the Loire, show some rich stained glasses for windows; and P. J. Brocard, of Paris, has a large and handsome display of chandeliers and mirrors, arranged with exceptional good taste.

The front line along the main aisle is taken up principally with a display of cloths, cotton goods, silks, velvets, gloves, laces and wearing apparel. The goods displayed in this department are exceedingly beautiful, and the exhibit is very large. The silks and velvets are displayed in cases enclosing a court, in which the exhibitors have provided cushioned seats, that the

lady visitors may examine the beautiful fabrics at their ease. The variety of the display is astonishing. All the great manufacturers of Lyons and Paris are represented, and each has exhausted his ingenuity to make his exhibit as beautiful and as varied as possible. Here are silks, velvets and satins, ribbons and silk threads of every conceivable hue and texture. The eye is dazzled by the brilliancy of the collection, and at the same time one is charmed with the perfect good taste of the arrangement.

The clothing department is also extensive and includes wearing apparel of every description. Some of the costumes for ladies are superb, and are not excelled by any in the Exhibition. They are displayed upon wax figures, and are thus seen to the best advantage. Among these are several magnificent court dresses, which are the delight of lady visitors. The display of laces and lace fabrics is very fine, and is also quite extensive. The collective display of the lacemakers of the department of Calvados is one of the most complete in the French section, and in it are a number of superb lace shawls which receive, as they deserve, general admiration.

Going back from the front line, near the western end of the French court, we find a handsome display of Aubusson tapestries, worked by hand, in which the weaver has introduced as many as three thousand shades of wool. These are hung principally around the outer walls of the pavilion of the French booksellers, and constitute a series of rich and beautiful ornaments. They are woven into fine pictures, which at a distance resemble paintings, and the shadings are as delicate and as perfectly laid on as if the work had been done with a brush.

Raffl & Co., of Paris, make a showy display of statues for churches, of painted plaster. The centre piece is a group representing the Adoration of the Infant Saviour by the Shepherds and the Wise Men. There is a stable of boards, with real straw. The Holy Child lies in the manger and at either side kneel Mary and Joseph, while grouped around are the shepherds and the four kings. The figures are about two-

thirds life-size, and are brilliantly painted. A crowd is always gathered about the space, and the group receives as much notice, perhaps, as anything in the French collection.

Goupil & Co., of Paris, have a separate enclosure in which are displayed their famous art publications. Many of these engravings are familiar to the people of this country, having been extensively sold by the agents of the publishers in the United States. The collection is very fine, and shows the art of steel engraving in its most perfect form.

Opposite this enclosure is the pavilion of the Paris book publishers. Several of the great houses are represented. Hachette & Co. show a number of fine illustrated works, including Bida's beautiful etchings of the Four Gospels. An interesting exhibit is also made of educational and scientific works. Ducher & Co., of Paris, exhibit a fine collection of works on architecture, and at the centre of the pavilion is a superb reproduction of an oil painting in colored lithography.

To the north of the booksellers' pavilion are a number of handsome carriages, made principally in Paris. They are elegant and costly vehicles, and are fitted up in the most sumptuous style. Among them are a steam velocipede and two velocipedes worked by dog-power. The latter are singular-looking vehicles, provided with three immense wheels, one in front and two behind. Between the hind wheels is a comfortable buggy seat for the convenience of the rider. The two hind wheels are made of light iron spokes, extending in a double row from the hub to rim. Between these rows is an inner wheel or cage of stout wire-work in which the dog is placed. The animal thus works a sort of tread-mill, which turns the larger wheels and propels the machine. This singular vehicle is known as the Cynofere, and is said to run well on smooth surfaces. In the carriage department will also be seen a handsome array of trunks, saddles and harness.

Just beyond the carriages is the exhibit of cutlery. This is very fine, and the articles are beautifully displayed, but the exhibit is not equal to that of Great Britain. The chemists

also make an attractive display, and beside them are the glass-makers, whose collection extends up to the central transept and for some distance northward. Conspicuous among the articles exhibited are several immense sheets of plate glass, which tower towards the roof. They are said to be the largest specimens of plate glass in the world, and their transportation from the steamer to the Exhibition grounds was effected with extreme difficulty.

Near the western end the perfumers make a capital display of their wares, but do not dispense them to the public as lavishly as do the exhibitors in the same line in the American department.

The display of that large class of objects known on the continent of Europe as *Articles de Paris* is extensive, and occupies a very considerable part of the French space. It covers a wide range of articles, and may be said to include every object that can be used in the adornment of the person or of the house. The jewelry is a notable feature, and several rich exhibits are made, and are characterized by the peculiar loveliness and originality which belongs to the metropolis of European civilization. The list embraces bronzes, clocks of original and beautiful design, precious stones, fans that are the envy of all the fair visitors who look upon them, articles in ivory, ebony, tortoise shell, crystal and steel, mantel ornaments and a thousand other beautiful things which may be seen and enjoyed in this splendid collection, but which it would take a volume to describe.

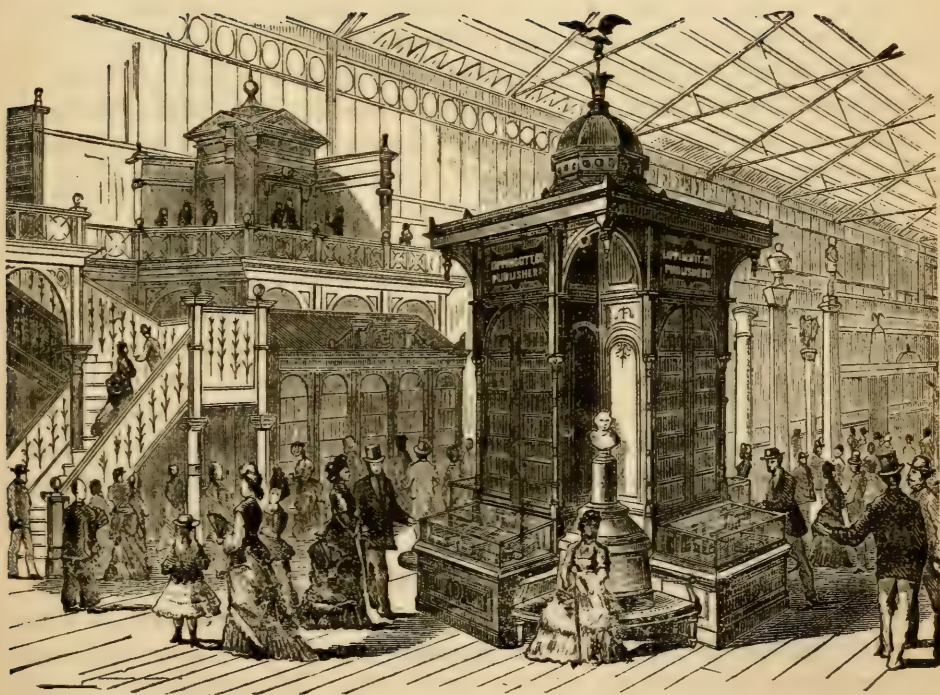
The department of engineering and architecture includes a series of finely executed maps and plans of the Suez Canal, a fine model of the steamship "Pereire," plying between New York and Havre, and a number of maps and plans and finely illustrated works and reports upon subjects belonging to this department.

The collection of scientific and philosophical instruments is excellent, and represents the best work of the best makers. The musical instruments are chiefly horns, flutes, violins and

music-boxes, though a few pianos and parlor organs are included in the collection.

The French exhibit of mining and metallurgy was transferred to Agricultural Hall for want of space in the Main Building, and will be noticed in another part of this work.

The offices of the French Commission are in the gallery to the east of the Roosevelt organ.



THE BOOK TRADE EXHIBIT—SHOWING J. B. LIPPINCOTT & CO.'S CASE.

CHAPTER XII.

THE MAIN BUILDING—CONCLUDED.

Germany—Location of the German Section—A Superb Display of Porcelain—Beautiful Vases—Plate Glass—Bronzes—The Silks—Display of the Elberfeld Manufacturers—The Ivory Pavilion—The Chemical Display—The Velvet Pagoda—The Hospital Department—Fine Church Decorations—Models of an Ocean Steamer—The Book Pavilion—The Austrian Court—Magnificent Bohemian Glass—The Meerschaum Pipes—Exquisite Carvings—Vienna Leather Work—The Italian Court—Artistic Wood Carvings—Beautiful Jewelry—Glassware from Venice—Belgium—Magnificent Display of Textile Fabrics—Carved Furniture—Fire-arms—A Belgian School and Gymnasium—The Lace Court—Beautiful Iron Work—Pictures in Tapestry—The Netherlands—A Grand Display of the Public Works of Holland—The Woollen Goods—Model Farms—A Dutch Eating-house—Rare and Beautiful Art Works—Educational Exhibit—The Artisans' School—Switzerland in Miniature—The Watchmakers—Scientific Instruments—The Swiss School System—Rich Laces—The Wood Carvers—Sweden—The Peasant Groups—Scenes in the Home Life of the Swedes—A Beautiful Exhibit—Fine Porcelains—The Bessemer Steelmakers—Display of the Swedish Army—Norway—Peasant Groups—The Laplanders—A Fine Collection—The Danish Court—Etruscan Imitations—Esquimaux Houses and Boats—The Spanish Pavilion—A Beautiful Structure—Rich Display of the Resources and Wealth of Spain—Evidences of Spanish Industry—The Egyptian Court—A Rare and Beautiful Display from the Land of the Nile—The Past and the Present—A Page from the Arabian Nights—Rich Robes—Articles from Central Africa—Egypt's Agricultural Resources—The Japanese Court—A Wonderful Display—Superb Bronzes—The Lacquered Ware—What the Island Empire Exhibits—The Chinese Court—A Beautiful and Curious Display—Exhibit of the Orange Tree State—Another Sample of Dutch Energy—The Tunisian Court—Eastern Magnificence—Display of the Native Products and Manufactures of Mexico—The Brazilian Pavilion—A Superb Edifice—The Empire of Brazil Illustrated—Exhibit of the other South American States—Display from the Sandwich Islands—The Russian Exhibit—Rich and Beautiful Objects from St. Petersburg and Moscow—The Portuguese Court—A Handsome Collection—Special Portuguese Features—The Turkish Court—The Wonders of the Land of the Sultan—The Mineral Annex—The Carriage Annex.

Germany.

LIKE her neighbors, England and France, Germany has left her space unenclosed. It lies on the west side of the central transept, and extends from the main aisle to the south wall of the building, covering a little more than one-half the space occupied by France. The display is very fine, and the cases in which it is contained are more varied than those of the other European nations.

The principal display, and the most beautiful single exhibit in the building, is made by the Royal Prussian Factory, of Berlin. It stands at the intersection of the main aisle with the central transept, and faces the splendid collection of Elkington & Co., in the English section, the rich bronzes and porcelain of the French section, and the pavilion of the jewellers and silversmiths in the American Department. The collection of these beautiful objects at this central point of the building renders it by far the most attractive portion of the entire hall. The space of the Royal Prussian Factory is occupied by a large crescent-shaped case, covered with black velvet and ornamented with gilt lines and bands. At each end of the case is a tall column of ebony and gold, surmounted by a Prussian eagle in gilt. On the shelves of the case, which rise one above the other, is collected a rare and beautiful display of porcelain. Vases, cups and saucers, plates, statuettes, busts, and other articles of the most exquisite shapes, ornamented with the most delicate and carefully executed paintings, are gathered here. Here are also framed paintings on flat plates of porcelain, each of which is worthy of the most careful study. At the front line of the collection stand three massive vases, its master pieces, which are not equalled in the Exhibition for richness of decoration or the artistic merit of the paintings upon them. The largest of these is the Germania vase, one side of which is decorated with a painting of "Germania Cultivating the Arts and Sciences," the other with a painting of "Borussia, the Shield and Protectress of the Empire." The price of this vase

is \$5000. Near by is the Aurora vase, decorated with a fine copy of Guido's Aurora, and valued at \$4500. The third is the Otho vase, of dead olive green, with a painting of "Otho in the Tomb of Charlemagne." It is valued at \$900. A handsome centre table of carved oak, with a porcelain top, on which is painted a copy of Raphael's "Poetry," is valued at \$2200. One must linger long here to enjoy and appreciate this beautiful display, each article of which is a study in itself. The Royal Factory is the only exhibitor of fine porcelains. The German exhibit is not, as a rule, made up of objects of beauty simply; it is a collection of all the important industries of the Fatherland, and includes articles in daily use by the lower as well as the upper classes.

Immediately west of the porcelain exhibit, along the front line, is a fine display of plate-glass, and beyond this is the collective exhibit of the German jewellers. It is contained in a handsome case, and includes many objects of great value and beauty. It does not compete with the exhibit of either the United States, France, or England, but is well worthy of examination. The cameos and enamels are very good, and the oxidized silver caskets are very pretty.

Going west still, along the front line, we notice a considerable collection of bronzes, the principal object of which is a copy of the monument to Frederick the Great in Unter den Linden at Berlin. Here are shields and swords such as might have been used by some of the stout old German warriors centuries ago, and a number of kindred pieces. This collection does not represent the best school of German art at the present day.

Still going west, along the front line, we come to the collective display of the toy-makers of Nuremberg. They are of tin and wood, and are contained in a large and handsome case, but do not fairly represent the extent or variety of the industry which employs so many thousands of German hands. Magdeburg has also a case of toys exhibited through a Philadelphia importer, who is singularly enough named Doll.

Beyond the toys, Gebbard & Co., of Elberfeld, make a fine display of rich silks and satins of all hues, and in the next line

of cases Saxony displays her hosiery, her yarns, and her gloves in thread, wool and kid.

Still farther west, on the front line, is the collective exhibit of cloths made by the manufacturers of the Rhine land, and beyond this Elberfeld makes a collective exhibit of Italian cloth and tailors' trimmings. The Elberfeld manufacturers contribute a considerable part of the display of textile fabrics, and their goods are arranged in tall and large cases, well filled and tastefully arranged. A prominent feature of the Elberfeld collection is a case of handsome prints illustrative of a new process of dyeing goods.

Nuremberg has a space on the front line, just beyond Elberfeld, in which she shows a collection of fine linens and damasks. Close by, Saxony has a similar collection, and that country brings up the rear of the German line upon the main aisle with an attractive exhibit of laces and embroidery, together with a number of illustrations of the process of lace making.

We pass now from the front line to the aisle immediately south of it, and beginning at its western end, work our way eastward again. We first notice some specimens of woven wire goods from Dresden, close by which is a handsome display of woollen articles from Berlin.

The next prominent object is a tall and elaborate ebony show-case ornamented with ivory—one of the most unique and attractive structures in the building. It contains a beautiful exhibit of ivory articles by Heinrich Meyer, of Hamburg, showing the different uses to which that substance is put. To the east of this is a handsome case containing the collective display of the Bavarian makers of metal-leaf and bronze colors. Gold and silver leaf are shown here in great variety, and the powders of these metals are contained in a number of glass cups.

A pyramid of printing inks stands at the eastern end of the aisle, and above and below it two of the Farinas, both hailing from the bad smelling city of Cologne, exhibit their perfumes.

Turning southward, we find a number of cases along the central transept devoted to the collective exhibit of the German manufacturing chemists. The preparations displayed are ex-

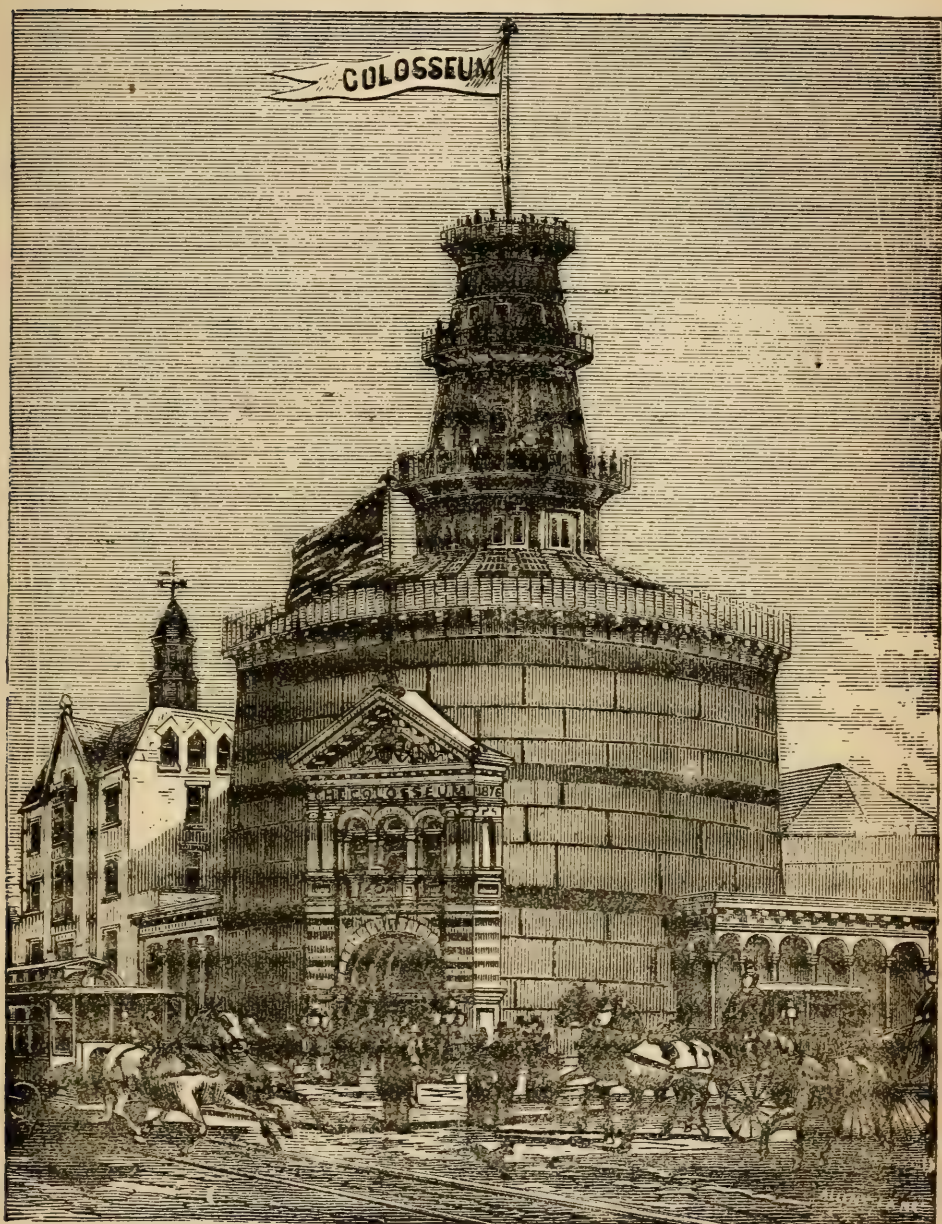
ceedingly interesting, and are among the best of their class in the Exhibition. The display is very large, and prominent in it is the case of fine Aniline dyes exhibited by a Berlin house. A large case of ultramarine from Nuremberg stands at the western end of the chemical exhibit and attracts much attention.

Going west from the chemicals, we notice a fine collection of lamps and lanterns from Leipzig, among which a number of Chinese lanterns make a good show. Beyond this is a tall pagoda constructed of velvet, gilt, and glass, containing a beautifully arranged display of brilliant-hued fabrics of cotton-velvet from Linden, in Hanover. At the lower part of the pagoda are a number of small drawers containing samples of the goods displayed above, which may be opened for the examination of the samples. Opposite this pagoda is a beautiful collection of Berlin worsteds and wools of the most exquisite shades arranged in an attractive and artistic manner.

We have now reached the western end of the German exhibit once more, and turning southward enter the department of musical instruments. The display of brass, reed and stringed instruments is quite large. Adjoining it on the east is a considerable exhibit of German pianos. They are mostly in cases of ebony, some of which are richly carved. A number of the leading piano-makers of Germany are represented, but scarcely any effort has been made to compete with America in this line. The square form of piano is conspicuously absent. It is not used now in Europe, and the cases in this collection are either upright or of the "grand" form. Two makers exhibit cabinet organs, and one a large pipe organ. Several orchestrions are also included in the collection.

Close by are the scientific and philosophical instruments, the leading makers of Germany being represented. In the rear of this, against the southern wall, is the collection of appliances illustrating the hospital system of the German army. It includes litters, ambulances, camp-beds, models of hospitals and of railway hospital trains, and a figure showing the dress and equipment of the brethren of the Geneva convention. There are all sorts of surgical appliances, and books of instruction and

photographs of various surgical operations. The whole system of German military surgery and hospital management is well shown in this little corner which stands by itself.



THE COLOSSEUM, SOUTHEAST CORNER BROAD AND LOCUST STREETS.

Beyond the hospital department is a tower clock exhibited by a firm from Hoyerswerda, in Upper Lansitz. The bell is so

arranged that it can be rung in the usual style, and is handsomely chased.

Adjoining this is the collective display of the clock-makers of the Black Forest. It is large and attractive, and includes musical clocks, and the small time-pieces which are a specialty of this part of Germany. Some of the clock cases are finely carved and very beautiful.

To the east of the piano department, a Munich house exhibits a large collection of church ornaments and figures of the Madonna and the saints. The collection includes a "Christ on the Cross," "a Christ in the Sepulchre," and a considerable number of "Virgins" and saints. Each figure is gayly painted, and each is ticketed with its price in true business style. The Madonnas are rather better than is usually found in work of this class, and their expression is singularly sweet and winning. The collection also includes a large altar in oak, with numerous niches containing figures and painted panels. It is a brilliant work, and is valued at \$3000 gold.

Immediately south of this collection, and near the entrance to the "Ladies' room," the Hamburgh Steamship Company exhibit two models of the "Frisia," one of their largest and best steamers. One of these shows the vessel complete in every detail; the other is a longitudinal section and shows the interior construction of the vessel from keel to deck. The two models are admirably executed, and show perfectly the construction and equipment of a first-class ocean steamer.

Opposite these models is a handsome case containing a fine display of lead pencils, crayons, and colors by the well-known manufacturer, A. W. Faber, of Nuremberg. The next case is that of his great rival, Schwanhäusser, of Nuremberg, who also makes an elaborate display.

We come now to the handsome pavilion containing the collective exhibit of the German booksellers. It stands at the south side of the German section, in front of the Café Leland, and is black, with ornamental gilt lines and mouldings. The cases are arranged around the outer walls, and upon entering through either of the four portals the visitor finds himself in the midst

of a display of books to which the array on the outer side was but an introduction. The exhibit is very extensive and very complete, and is the only thing in the building that can rival the display of the American book trade. All the leading German publishers are represented, Leipzig and Berlin contributing the greater part of the collection. The collection is miscellaneous in its character. Some superb illustrated works are to be seen here, and a number of costly and valuable atlases. The collection is open to the inspection of visitors upon application to the official in charge.

The display of leather goods is large and excellent. Leipzig sends some elegant furs; Stuttgart many specimens of inlaid wood work, and some fine furniture in ebony and oak; and Dresden some handsome furniture from the establishment of the Royal Saxon Cabinet-maker.

Austria—Hungary.

The Austrian section lies along the main aisle, and adjoins that of the German empire on the west. Like the German section it is unenclosed. It is handsome in many respects, and much resembles the display from Germany, but cannot, on the whole, be considered a fair showing of the great industries of the Austrian empire. Hungary is scarcely represented at all. The Hungarians were anxious at first to send a complete national representation of their country to the Exhibition, but their enthusiasm was suddenly destroyed by the decision of the government at Pesth not to make a separate national exhibit.

Commencing at the west end of the front line we notice a fine display of cut and stained glass. There are other cases of fine glassware at other points along the front line, and these, as is proper, are arranged as conspicuously as possible. The glassware is mostly from Bohemia, and constitutes one of the largest portions of the Austrian exhibit. It is arranged on broad counters with mirror tops, and makes a brilliant and attractive show. It is of the finest and most delicate quality, and is beautifully ornamented. The colors are of the rarest hues, and are superior to anything of the kind to be seen in the building.

A rich ruby tint overlaid with golden vines is one of the favorite and most beautiful colors; another is a clear heavenly blue through which a ruddy light resembling the glow of the setting sun seems to shine steadily. The contrast between these rich hues and the clear crystalline glass which gleams like a mass of diamonds is very striking.

The next display along the front line is of work in amber and meerschaum. Austria has no rival in this class of work. The amber specimens are principally mouth-pieces for pipe-stems, and the meerschaum work consists chiefly of ornamental pipes, which are often very artistic and of great variety. They represent heads of famous personages, types of the various races and nationalities of Europe, and animals, birds and fishes in the simpler styles, while the more elaborate have bowls richly carved with hunting or historical scenes or comic representations of episodes in domestic life.

East of the pipes is a handsome collection of porcelain. It is attractive, but cannot compare with the neighboring exhibits in this line. Continuing on our way we notice some handsome laces which attract considerable attention.

This brings us to the German section, and we turn off to the southward and notice the extensive display of gloves of kid and leather which come principally from Prague. Close by are the displays of the Vienna manufacturers of articles in Russia leather. They consist of albums, portemonnaies, mirror-frames, caskets, diaries, and other articles for household adornment or personal use. This, as all travellers know, is a great Viennese industry. It is largely represented here, and the articles attract general attention by their richness and beauty. Another specialty of Viennese industry is the manufacture of dress buttons, and these are extensively and handsomely shown here. The display of cloths is principally from Moravia, and is well worth examination, but does not fairly represent the great Moravian industry. The silk-weavers of Vienna have a large and handsome exhibit tastefully arranged in rich cases of ebony and gold. The exhibit of jewelry is small, but contains some beautiful ornaments and some fine precious stones. A Vienna house

shows some pretty ornaments of mother-of-pearl, and one from Prague some splendid garnets. In the furniture department there are a number of iron sets worthy of notice. The display of musical instruments is large and showy; and the scientific and philosophical instrument makers make a creditable exhibit. The carpets shown do not compare with either England, France or the United States, but are very good.

A considerable section is devoted to a display of books, paper, lithographs, and photographs. The principal feature of this is the collective exhibit of engineering and architectural photographs, models, designs, and reports.

Italy.

The Italian section occupies the west end of the Main Building, and lies north of the main aisle. The space is enclosed with a light frame-work, with three tasteful arches fronting on the main aisle. Over the central arch rises a shield bearing the white cross of Savoy surmounted by a trophy of national flags, and above each of the other arches is a shield with the arms of the kingdom and a trophy of flags. A tall flag-staff rises from each end of the entrance bearing a banner. The banner at the eastern end is inscribed with the proud legend, "Italy United Forever;" that on the west bears the inscription, "To the Great Italian Navigator, Christopher Columbus."

Entering the enclosure we notice first a collection of fine bronzes, some of which are half life-size, and are reproductions of ancient works of art. Beside them is a considerable display of furniture. Some of the pieces are heavy and elaborately carved. A prominent object is an Episcopal chair and desk carved in a masterly manner with the heads of cherubs, and scenes from the Scriptures. An elaborately carved bed, a bookcase, and mantel are also worthy of careful examination. Venice has a case of cherubs carved in wood, which are very pretty. Milan has a number of inlaid tables, ornamented with exquisite pictures in papier-maché. One of these represents the Milan Cathedral, and another St. Mark's, at Venice.

The display of wood carvings is very fine. The gem of

this collection is a mirror-frame, in dark, rich wood, with a troop of chubby children dancing around it.

The exhibit of jewelry is not large, but contains many handsome and valuable objects. Olivieri, of Venice, sends some fine corals, and Salvo & Sons, of Genoa, display a collection of ornaments in filigree and gold. Francatti & Santamaria, of Rome, exhibit a case of rare and beautiful cameos and Florentine mosaics. Pio Siotto, of Rome, exhibits a case of cameos, showing the various stages of cameo-cutting, from the shell to the completed gem. In this collection are some of the finest cameos in the Italian exhibit.

Venice sends a number of exquisite specimens of her glass-ware, and also some beautiful mosaics and corals. A prominent feature of this collection consists of the handsome mirrors of all sizes, which are in the best style of Venetian workmanship. There is a pretty exhibit of pottery and majolica ware. It is not very large, but is very attractive. Alongside of it are a number of statues, statuettes and busts in terra cotta and baked clay.

Milan, Modena, Turin, Rome, Palermo and Lucca, send a fine collection of raw and spun silks and silk goods, and Tuscany sends a creditable display of her world-renowned straw goods.

A conspicuous object near the centre of the eastern side of the Italian section is a large bell made in Venice and delicately chased. It has been exhibited at all the recent International Exhibitions, and has always taken a medal. A good showing is made of musical instruments. Italy also sends a fair contribution of the plainer and more necessary articles of household use, showing that her genius is being directed towards the more prosaic as well as to the fine arts.

Along the northern end the photographers make their display, exhibiting, among other pictures, a number of rich "moon-light effects." Here is a large map showing Garibaldi's plan for improving the navigation of the Tiber and draining the marshes of the Campagna, and fronting this is a statue in plaster of the "Liberator of Italy."

Belgium.

The busiest country in Europe is well represented in the Exhibition. The Belgian section lies immediately west of the Brazilian court, and north of the main aisle. It is unenclosed, but is conspicuous from the elegance of the cases with which it is lined and the beauty and systematic arrangement of the goods displayed. Along the front line the glass-makers have the post of honor. A number of cases are filled with handsome specimens of plate and colored glass, and several immense oval and rectangular mirrors stand towering to the ceiling at the very front of the section. The glass exhibit is very fine, and is richly worth examination.

At the western end of the front line stands a large wooden pulpit elaborately and beautifully carved with scenes in the life of the Saviour and figures of the saints. It is surmounted by a canopy, ornamented with angels sounding their trumpets. It is admirable for the art as well as the workmanship displayed.

Back of the front line we enter a region devoted to cloths and woollen fabrics, of which a large and excellent exhibit is made. Verviers sends her best products, and offers a sharp competition to both France and England in this department. The manufacturers of this place make a collective exhibit. Close by are the ebony and gilt cases filled with snowy linens from Brussels. The skill and artistic taste of the Belgian wood-carvers is shown in a collection of carved furniture and a massive mantelpiece, and in some excellent statues of this material.

Although the most peaceful country of Europe, Belgium is largely engaged in the manufacture of fire-arms, and consequently her display in this department is extensive and valuable, and those interested in military matters will find ample opportunity for the gratification of their curiosity. Not far from the arms exhibit, the city of Ghent makes a curious display, consisting of rags and waste papers assorted in rows of glass boxes, with this motto on the case: *Colligite fragmenta ne pereant* ("Gather up the fragments, that nothing may be lost").

Near the centre of her section Belgium displays a model of one of her public schools. The building is about twenty feet in height, is constructed of native pine, and is divided into several apartments. Entering at the principal door, we find ourselves in a small hall provided with washing apparatus, towels, and a row of pegs for hats and coats. A door at the end of this hall admits us to the school-room, which is furnished with rows of desks and seats for the pupils, a platform and desk for the master, a tall stove, a clock, and a crucifix. Blackboards and all the apparatus used in the school are grouped about the room, and specimens of the text-books used and a schedule of the course pursued are exhibited. At the front end of the room a door leads into the gymnasium, in which is a small model of this department. The school is admirably arranged, and gives one a clear and comprehensive understanding of the system of primary education in Belgium.

Close by the school-house are some marble mantels of beautiful workmanship. They are in both white and colored marble. We notice here, also, a number of marble slabs, on which some curious landscapes and figures are etched with aqua-fortis.

There is a handsome pavilion devoted to the purpose of advertising the waters of the Spa. A fine display is made of articles of embossed leather, a number of paintings upon wood, jewelry, priests' vestments of cloth of gold embroidered with silk, and fancy articles.

A small court is formed of the cases containing the laces of Brussels and Mechlin. The display is large and magnificent, and excels anything of the kind in the building. The fabrics are of an infinite variety in form and texture, and range from the most delicate laces to curtains heavy with embroideries. Look where you may the eye rests upon some beautiful object in this court, and you can but wonder at the patience with which so many women have worked their lives into these fabrics.

An excellent display of books and scientific and philosophical apparatus is made, and musical instruments form a small part of the exhibit of the "republican kingdom."

The iron and steel exhibit is not entirely satisfactory. It con-

sists of a few car wheels, a small display of bar-iron, and principally of small sections of rail bars, steel ingots, and iron girders for bridges. It does not fairly represent the magnitude or variety of this great branch of Belgian industry, and gives us no idea of the great works produced by the Belgian manufacturers. We notice, however, two doors of iron wrought in vines and flowers, which are worthy to have been the work of the Florentine iron-workers of the middle ages.

An exhibit is made, close by the iron, of liquors and cordials manufactured in the kingdom.

At the upper end of the section are a number of beautiful tapestries from Malines, equal in beauty and workmanship to those we have noticed in our account of the French exhibit. One of them is a portrait of Rubens; another a portrait of Cousin in Arabian costume; and a third a full-length painting in the style of Louis XVI. Eight panels, grouped together, represent the eight gods of Olympus, with all their attributes.

The Netherlands.

The Dutch section lies on the north side of the main aisle, between the Brazilian and Mexican courts. It is one of the most ornamental in the building, and is enclosed with a light arched frame-work, painted in cream-color and gold, and hung with heavily draped curtains of maroon-colored velvet. There are three entrances in the front line and several at the sides. Over the central entrance is a trophy of the national colors and the arms of the kingdom in gold. The entrance on the east side of the central arch leads to the exhibit of the colonies of Holland, and that on the west of the central arch to the department of public works. Holland makes a larger and better arranged display here than she did at Vienna, and her various industries and the energy and skill of her people are shown in the most favorable light.

One naturally turns first to the department of public works, not only because of the imposing display which it makes, but because it is to the patient and skilful labor of her people in this department that Holland owes her existence

among the nations of the earth. In this section a number of finely executed plans, models and photographs are shown, from which one can learn how the work of reclaiming land from the ocean is carried on, and can gain a clear knowledge of the system by which the little kingdom is protected from the inroads of the sea, a work which requires ceaseless vigilance and the most intelligent labor. Models are exhibited which show at a glance the change that has been made in the surface of the kingdom, and from the study of these we can well understand how it was possible for the desolate marshes of the North Sea to become one of the busiest, richest and most intelligent countries of Europe. The energy and intelligence that could conquer the elements and make a home in the face of such obstacles is capable of anything. The docks, railroads, bridges and other public works of the kingdom are shown by a series of photographs, drawings and models. Indeed so complete is the display of these illustrations that a few hours spent in examination of them cannot fail to make the visitor thoroughly acquainted with and give him a profound respect for the little kingdom and its sturdy people. Holland justly devotes considerable space to this department, for in no other way could she so thoroughly show her triumphs in the work of civilization.

Passing out of the department of public works into the general exhibit of the kingdom, we notice near the entrance some beautiful specimens of inlaid furniture. One of these is a screen decorated with scenes from Faust, in papier-maché. Close by is a display of lacquered ware, as handsome and as well executed as anything in the Japanese exhibit.

Delft sends a fine collection of carpets woven each in a single piece, in imitation of the Smyrna carpets, and softer, thicker and richer in color than those famous fabrics. Alongside of these is a collection of fine blankets, some of which are nearly an inch in thickness, and all as soft and delicate as down. With them are displayed coverlets, thickly wadded and delicately quilted, which are the housewife's delight. The display of woollen and cotton cloths, of mattings and nettings, is

also exceptionally good. Jute goods form a specialty of this collection.

Just back of this display is a queer hand fire-engine, set on little wheels and requiring sixteen men to work it. One can but smile at the contrast between this old-fashioned machine and the splendid "steamers" on exhibition in our own department in Machinery Hall.

The Dutch army exhibits samples of the fire-arms used by it; and to make the display truly national a manufacturer sends a case of the long-stemmed pipe which is the inseparable companion of the Dutchman. Close by is a fine display of chemicals; and near this we notice a number of excellent specimens of wood-graining. A collection of tiles and oil cloths is also shown, in which the different marbles and woods are perfectly imitated. The collections of glassware and of iron and tinware are good, and near them are several of the immense covered wicker bathing-chairs familiar to those who have visited the seashore resorts of Holland.

The agricultural system of the kingdom is displayed by the exhibition of a model farm in miniature. It is no doubt well adapted to the needs of the country, but shows few details that our own farmers will care to copy. A number of plaster casts of *disjecta membra* of cattle afflicted by the plague are also shown. A number of models of Dutch houses are exhibited, among which is the model of an eating-house, showing the whole interior arrangement. Another model shows the system of thatched roofs in use in the Dutch colonies.

A special pavilion is used for the exhibit of the Dutch publishers. Here are to be seen a number of fine illustrated works, and the lovers of rare etchings will find a treat for them in the collection displayed by the book trade of Amsterdam. Conspicuous among the art works is the beautiful Memorial volume, published in commemoration of the war of independence, in which the Dutch, with pen and pencil, do homage to the heroes that saved them from the destruction prepared for them by Spain.

The exhibit of school apparatus, text-books, desks, maps, etc.,

is admirable, and shows what good work Holland is doing in the cause of knowledge. The Artisan School, of Rotterdam, established in 1869, makes an interesting showing of its work. It is designed to give theoretical and practical instruction in the useful arts, and turns out each year a class of skilled and educated workmen. It is doing its work quietly but thoroughly.

The colonial department is exceedingly interesting and very complete. All the colonies are represented, and the products of each are shown. The collection includes grains, woods, barks, fruits, oils, metals and other minerals in great abundance. The weapons and clothing of the native tribes are also shown, and include curious filigrees and some rich silks and embroideries and silver cloths. The principal display is from Java, and the cinchona trade of that colony is illustrated profusely by means of photographs, specimens of bark, leaves, etc. Coffee forms a large part of the exhibit.

Against the northern wall of the building is a handsome pavilion of ash—one of the prettiest structures in the hall—containing the offices of the Royal Commission, the members of which have abundant reason to be satisfied with the appearance their country makes in this grand assembly of the nations of the world.

Switzerland.

The Swiss section lies on the north side of the main aisle, between France and Belgium. It is unenclosed, and is one of the plainest in the building in ornamentation. It is not the less interesting for this absence of decoration, and receives a fair share of the attention of visitors.

On the front line is arranged a large collection of watches, the most important article of the Swiss export trade. Nearly all the leading makers are represented, and back of these cases are displayed the tools by which the watches are made. A number of clocks, including a large electrical clock, form a part of this exhibit. Musical boxes and mathematical, scientific and philosophical instruments come next, and the display of these is excellent and extensive. They are of the finest quality,

the Swiss being as proficient in the manufacture of them as they are in the making of watches.

Back of this line is a large pavilion, the entrance to which is through an archway in the front. On one side of the arch is a splendid map of the geological survey of Switzerland, and on the other a fine geographical map, each richly worthy of study. The arch itself is composed of panels ornamented with the arms of the various cantons, and above it stands the white cross of the republic. The pavilion is devoted to an exhibition of the educational system of Switzerland, and consists of charts, models and apparatus used in the system of object-teaching. Drawings, text-books and specimens of the pupils' work in the common schools are also shown. The Swiss publishers make their exhibit here, and in this pavilion are displayed fine photographs of scenery and of the cities and public works of Switzerland. These views, together with the maps at the entrance, give the visitor a fair idea of the topography and scenery of the country.

One of the most notable features of the Swiss exhibit is the display of embroidered lace curtains from the canton of St. Gall. These curtains are made by hand; the patterns are rich and artistic, the workmanship of the finest quality, and the completed fabric constitutes a genuine work of art.

A large exhibit is made of coarse woollen goods for peasant wear, and some good silks and fine straw work are shown.

The wood-carvers, who are so numerous in Switzerland and so famous for their skill, make a large and attractive display. Their wares exhibit a wonderful degree of patience as well as skill, and are as various as they are excellent, consisting of miniature chalets, churches, birds and beasts of many kinds, cuckoo clocks, tables, brackets, etc.

The office of the Swiss Commissioners is a pretty chalet, and stands against the northern wall of the building. Switzerland does not make as large or as comprehensive a display here as she did at Vienna in 1873, but her exhibit is still deeply interesting, and should be carefully studied.

Sweden.

The Swedish court is situated on the north side of the main aisle, to the west of the space occupied by the British colonies. It is enclosed along the sides, but the front is open and is marked merely by a series of tall, ornamental flag-staffs, bearing banners of blue with the Swedish cross in yellow. Festoons of



EASTERN ENTRANCE TO THE SWEDISH COURT.

blue and yellow streamers are suspended between the flag-staffs, and give to the entrance a light and graceful appearance.

Six groups of figures are placed at the sides of the entrances to the court, illustrating some of the habits and the dress of the peasantry. There is one at each side of the front entrance on the main aisle. The group on the east consists of four figures, and represents a young man coming to ask for a wife. The young man, a tall, fine-looking fellow, stands opposite the father, who is seated at a table mending a clock, and awaits his answer. The old man looks down in doubt and smokes, and the mother, who is evidently favorable to the suit, stands with her hand on the father's shoulder, as if trying to persuade him to consent. The girl meanwhile stands between the mother

and the lover, with an expression which seems to say that she has made up her mind, and the old man "may as well give in." At the west side is a group representing a hunting scene. A large elk has just been brought down by the rifle of a hunter and lies bleeding on the ground, while the members of the hunter's family are standing by enjoying his triumph and watching the death-struggle of the animal.

At the entrance on the east side of the court are two groups. The one on the south side of the doorway represents the christening of a child. The baby is swaddled in the most uncomfortable manner, and is ready for the solemn act. Three women, one of whom is the mother, are grouped about it, and the father sits across a chair, with his pipe in hand, looking at the child with paternal pride. At the north side of the door is a sadder group. The little one is dead, and lies white and still in its little cradle, with the tiny black coffin which is to receive it in readiness on the floor. The mother bends over it in grief, and the father, clad in a sheepskin coat, stands looking on sorrowfully. At the opposite side of the room the good pastor, who has been endeavoring to comfort the afflicted parents, sits with his Bible in one hand and his arm around the remaining child of the family.

At the entrance on the west side of the court there are two additional groups. The one on the north side represents a Laplander, with his sledge drawn by a reindeer. He is just starting out from home, and his wife stands by the sledge receiving his orders. Both figures are dressed in skins, and the sledge is a genuine article from "the frozen North." At the south side of the door the group consists of two figures—a husband and wife seated at opposite sides of a table. The man is reading from the Bible, and the woman is listening reverently. The figures in all the groups are life-size, and are clad in the national dress of the classes they represent. The faces preserve the characteristics of each class.

The Swedish exhibit is one of the most complete and tastefully arranged in the Exhibition. The show-cases are hand-

soner than is the rule with the European nations, and the articles are displayed to the best advantage.

At the entrance stands a rich display of beautiful porcelain. The articles are delicate and the tints exquisite. Floral decorations are much used in these, and with more than ordinary taste. The exhibit of pottery and glassware is also attractive. In this collection are several models in Parian marble of the fountains in the principal square of Stockholm, which attract much attention.

Furs and leather goods form a considerable and interesting part of the display.

One of the most prominent features of the Swedish collection is the exhibit of Bessemer steel, in which the principal part is taken by the Sandvik & Fagaster works. The articles exhibited cover a wide range. The largest is a piston-rod fifteen feet in length for a five ton steam-hammer, and the smallest a delicately-polished hand-mirror for a lady's toilette-table. Steel files, saws, tools of every description, and locomotive tires make up the collection. The workmanship in all these articles is masterly. Scissors, knives, swords, skates, and steel articles of the finer class are also shown in profusion. The remarkable bending power of the Bessemer steel under a great strain is shown by a railway axle five inches in diameter, double cold, which was bent under a fifteen ton hammer.

Match-making is a prominent industry in Sweden, and is represented by an extensive display of safety matches from Jöhnköping. These matches will not ignite except when struck upon a peculiarly prepared surface.

The educational exhibit is well arranged, and a number of illustrated works are shown as specimens of Swedish printing. A fine map of the geological survey of the kingdom and a large topographical map are included in this display.

The woollen manufactures of the kingdom make a fair exhibit, and the show of silks is especially good.

On the south side of the main aisle, diagonally opposite her principal exhibit, Sweden has an additional space between the Japanese and Danish sections in which she displays her

military equipment. Here are several wax-figures showing the costume of her men-at-arms in the time of the great Gustavus, and the uniforms of the officers of several branches of her service at the present time. Here are exhibited samples of the cannon and small arms used in the Swedish army, and the equipments of the artillery and hospital services. In the rear of the military exhibit she displays specimens of the work of the pupils of her technical schools, and illustrates in a happy manner the admirable operations of these establishments.

Norway.

The Norwegian court is situated on the north side of the main aisle between the Swedish and Italian sections. The space is enclosed by a handsome framework of native pine ornamented with red lines. Over the entrance from the main aisle is the name "Norway," and a trophy formed of the national arms and colors. The cases contained in this enclosure are uniform, and are constructed of light woods handsomely decorated.

At the front, immediately within the enclosure, are three handsome cases containing a fine display of jewelry and silverware. Here are some beautiful specimens of filigree-work from Christiana, which would not shame Venice itself.

Immediately back of these cases are two groups of figures similar to those in the Swedish court. On the east side is a group of Laplanders in their dresses of furs, comprising a father and mother with an infant and young child. The infant is stowed away in a leather case or cradle which is suspended from the mother's neck, and the older child is clad in a holiday suit of white bearskin. On the west side is a group consisting of a bride and groom in their wedding costumes.

Back of these figures is a small but beautiful collection of glassware from Christiana. Adjoining it Norway exhibits several home-made pianos, and then comes an exhibit of cloths, both cotton and woollen, cordage, threads and skins. There is also a case of fine shoes, another of silver ware, another of ancient coins and medals, and an imposing display of cod-liver oil. Specimens of ancient armor and weapons form a most interesting

exhibit, and contrast strikingly with the handsomely-carved modern furniture which stands near them. The iron manufacturers make a large and interesting exhibit, showing both the ores and the manufactured iron in various forms. A large case of silver ingots stands near by, and opposite are several queer little Norwegian carriages, each with a perch behind in which the postilion sits, and sometimes stands, to drive—the postilion being often a rosy-cheeked Norwegian lass. Here is shown a sledge made in the mountain districts in 1625, and still in excellent condition.

A model of a Norwegian school is shown, with books and apparatus illustrating the mode and course of tuition, and a map of the geological survey of the kingdom is close by.

Denmark.

The Danish section lies on the south side of the main aisle, immediately west of the Turkish court, and is enclosed by a triple court. The entrance to the first court consists of a triumphal arch richly decorated. On each side of the entrance is the word "Denmark," surmounted by a golden crown and a trophy of colors. Over the arch a shield with the national arms is set in the midst of a trophy of colors. The pavilions are draped with warm red curtains, which give to them a rich effect.

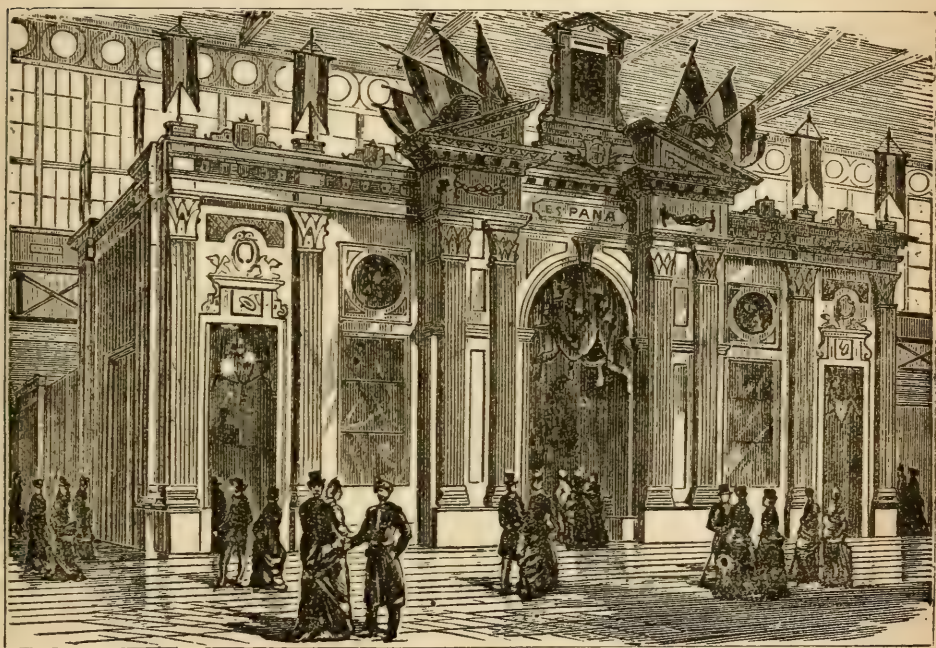
The front or northern court is devoted to a display of Etruscan imitations in terra cotta by P. Ipsen's widow, of Copenhagen. These are exquisite works, and are generally admired. Here also is a fine collection of silverware by a Copenhagen silversmith. The principal object is a large vase of solid silver valued at \$4290 gold and the duty. The vase is one of the most beautiful in the building. In the centre is a statue of Fame, at the feet of which are grouped the Arts. The base is devoted to a series of groups representing the triumph of Neptune.

In the central court some handsome furniture made of the wood of a pear tree is exhibited. Here is shown a collection of Esquimaux clothing, and in the southern court is a model of an Esquimaux house and an Esquimaux boat, all from Greenland. The exhibit includes specimens of the woollen manufactures of

Denmark, a collection of furs and skins, chemicals, geographical charts, and native Danish woods.

Spain.

The Spanish section extends from the main aisle to the south wall of the building, and adjoins the Egyptian court on the east. It is enclosed by an elaborately ornamented wall finished in imitation of granite, with two tall archways on each side. In this wall are set lines of show-cases, in which are displayed an extensive collection of the minerals of the kingdom. The



ENTRANCE TO THE SPANISH COURT.

façade which stands upon the main aisle is one of the most imposing structures in the building. A triple arch painted in imitation of porphyry supports a heavy entablature which is decorated with shields emblazoned with the arms of all the Spanish provinces, with the arms of the kingdom over the central arch. Above the royal arms is a painting representing Spain drawing back a curtain and displaying the rising sun of the New World. Standards and trophies of the national colors complete the ornamentation of the top of the structure. The

arches are hung with rich curtains of velvet. At each side of the central portal is a show-case, and over each is a portrait. That on the east side is Isabella the Catholic, whose generosity enabled Columbus to make his voyage of discovery; and that on the opposite side is Columbus himself. The word "Espana" is blazoned across the entablature in gilt capitals. The sides of the façade are also decorated with portraits. On the inner or southern side are portraits of Cortez and Ponce de Leon, at the east end is a portrait of De Soto, and at the west end one of Pizarro.

In the show-cases at the sides of the central portal are rich specimens of silver and gold work, and ornamental work in iron and steel, with fragments of armor and photographs of the government museums of ancient armor. In the show-cases built in the walls of the court are specimens of the mineral ores of the kingdom, silver, lead, copper, iron and coal, and samples of Spanish marbles, all admirably arranged.

The exhibit within the court is not a commercial one. There is scarcely an article shown that has a ready market in this country. The Spanish kingdom has taken a deep interest in the Centennial Exhibition, and has made an unusual effort to show its resources and wealth in the most pleasing and varied forms. One can hardly believe, in looking at the long lines of well-filled cases of all kinds of manufactures, that the Spanish people deserve their traditional reputation for indolence. It would seem that they must be, after all, a very busy and ingenious nation to produce so many and such attractive objects.

The woollen, cotton and silk fabrics displayed here are attractive as a rule, and many of them very elegant. A sumptuous exhibit is made of tapestries, velvets, brocades, laces, shawls, scarfs and light dress goods. They are distinct from those of either France or Belgium, and the elegance and beauty which characterize them are peculiarly their own. A considerable display is made of glassware and pottery of excellent qualities, and the painted porcelain tiles in this group are noticeably well executed. Chemicals are also exhibited in great abundance and variety; and marbles, building stones, and large blocks of coal

show that this branch of the wealth of the kingdom is still vigorous after so many centuries have dawned upon it. There are a number of specimens of arms, works in metal and inlaid work, the principal display being made by the province of Catalonia, the people of which are the most enterprising of the inhabitants of the Peninsula. Hats, shoes, fine woollen blankets, articles of wearing apparel and carpets are also shown. The entire exhibit is interesting in the highest degree, and, after examining it, the best-read visitor will amend his conceptions of "sunny Spain," and accord to her a more prominent place than he has hitherto assigned her among the industrial nations of the world.

Egypt.

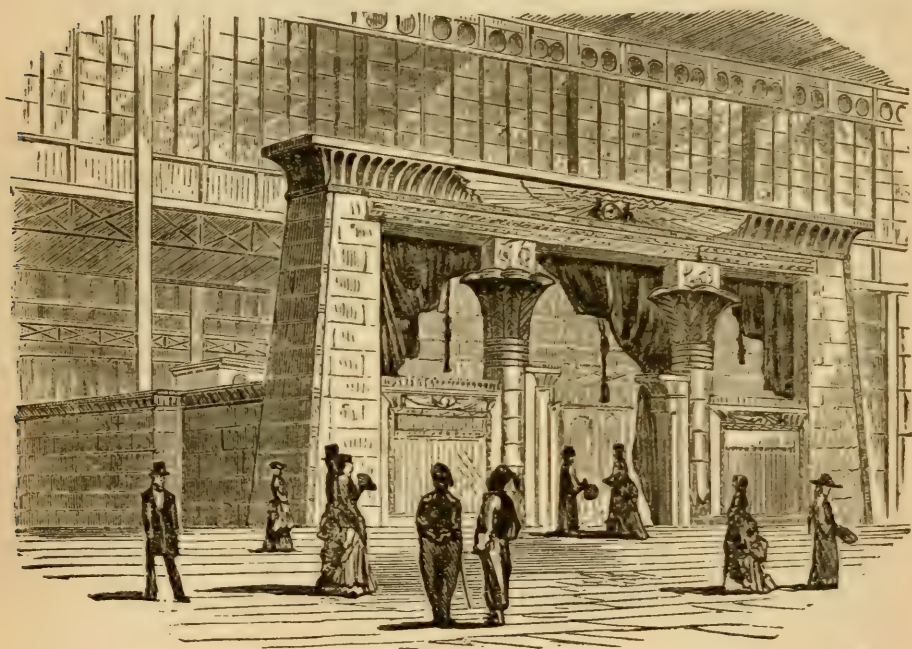
The Egyptian court stands south of the main aisle and to the east of the Danish section. It is enclosed by a high wooden structure resembling an ancient temple of the land of the Nile, and the façade is massive and attractive. It is painted in imitation of stone, and resembles the portal of a temple. Two massive pillars support the entrance, and their capitals are imitations of the lotus flower. Over the entrance is the globe with the encircling wings, the ancient Egyptian symbol of eternity, and on either side of the entrance crouches a solemn-eyed sphynx. The coloring is subdued, but fine. Upon the sides of the entrance are inscribed the words: "Egypt—Soodan—the oldest people of the world sends its morning greeting to the youngest nation."

Entering the court you seem to have left the outside world behind you, and to have entered a region of romance. Old memories of your boyish dreams of the Arabian Nights come over you, and you are tempted to look around to see if the good Caliph Haroun Alraschid is not watching in disguise the movements of the people who throng his realm, which has strangely strayed across the seas. For the time you may leave the great Exhibition out of your thoughts. You are in the East—in the land of Isis and Osiris, and you may revel in the treasures spread out before you.

As you enter, you notice on your right a small model of the

great Pyramid of Gizeh, and opposite this is a plaster head of Rameses II., who is declared by all the great masters of Egyptian science and history to be the Pharaoh of the Exodus, the new king which knew not Joseph. Around the walls of the court are hung plain and colored photographs and drawings of places and scenery in Egypt.

On the east side of the court is a case containing magnificent saddles and furniture for horses. These were formerly used by the pashas of Egypt, and are now the property of the Khedive.



ENTRANCE TO THE EGYPTIAN COURT.

They are used only upon occasions of the greatest ceremony. Their hangings are of crimson velvet, covered with heavy embroideries of gold. The harness and trappings are of pure bullion, and are heavy and costly. Some of the saddle blankets are woven of silk. The display is gorgeous, and gives one a fair idea of the magnificence of an Eastern ruler.

A fine exhibit is made of oriental and drawing-room furniture, a prominent object of which is a cabinet of ebony beautifully inlaid with ivory and mother of pearl, the designs being

in imitation of those in the ancient mosques. It is valued at \$5500, and is for sale. The display of ornaments for the household and person is very rich, and includes a large quantity of jewelry, precious stones, work in iron and copper, both ancient and modern; fancy articles, dress adornments, fans, walking-canes, sun-shades, and pipes of every description, many of which are ornamented with jewels.

Two large cases contain a collection of stuffs woven of silk and gold and silver thread. These are of the most gorgeous and brilliant character, and it is impossible to convey in words an accurate idea of them. Some of the smaller articles are worth as much as \$2000 each, and one rich robe is a masterpiece both in workmanship and design. In the same case are suspended two hanging lamps of glass, beautifully decorated with colors worked into the glass. They are hundreds of years old, and the art of making them has been forgotten for centuries. They are valued at \$5000, and constitute a rare and beautiful feature of the exhibit.

Between these cases lies stretched at full length a large crocodile of the Nile.

Close by are a number of dromedary saddles; and near these a number of specimens of red pottery ware. There are cases of beautiful and curious Arabic books and manuscripts, some of them bound in covers of velvet, embroidered with gold thread. Articles of ivory, horn, and metal for household use, are shown, and a number of native musical instruments. One of the rear courts contains a fine exhibit of Egypt's chemical products. A good display of porcelain and table ware of solid gold is made.

We next notice an exhibit of silk and silken fabrics, an industry which is carried on upon a large scale in Egypt. A prominent feature is a display of cocoons, arranged in neat patterns according to tints. They are attached to an upright branch, and in the centre is a large bunch of mulberry leaves hung with clusters of grapes formed of the small glassy cocoons.

The rugs and carpets of Egyptian manufacture form an interesting part of the exhibit, and will compare well with those of Turkey.

The Khedive makes a collective exhibit of over two thousand samples of native cotton, representing the crops of eight years. Egypt has since 1860 become largely engaged in the culture of cotton, and the samples thus displayed are of the highest importance to us, as they are the announcement that we have a determined rival in this branch of our own industry. Each sample is ticketed with the name of the buyer, the place of sale, and the price in Egypt and in England.

A collection of photographs exhibits the Egyptian system of public works, bridges, railroads, etc., and is of great interest and value.

The sugar, leather, gums, barks, nuts, wheat and other grains and the grasses of Egypt are shown by numerous well-arranged samples.

A large collection is shown of the rude arms and armor, the rough wooden sandals, the hats woven of reeds, the noisy tom-toms, and a barbaric canopy for the chief or monarch of the tribes of Soudan in Central Africa.

The educational system pursued in the schools established by the Khedive is shown by a collection of Arabic text-books and mechanical instruments executed by the pupils of the Polytechnic School at Cairo.

Altogether the Egyptian display is a bewildering blending of the ancient and modern civilizations of that wonderful land, taking you from a period four thousand years before Christ to the present day, and showing you side by side a bust of the Pharaoh of Moses and a portrait of Ismail Pacha.

Japan.

The Japanese section is on the south side of the main aisle, east of the Chinese court, and immediately opposite the Swedish section. It is enclosed with a light bamboo framework, and is ornamented with a profuse display of Japanese flags. It is about three times as large as the Egyptian space, and is filled in every part with a rich and valuable display, the variety and beauty of which are one of the great surprises of the Exhibition.

Just within the entrance from the main aisle is a display of

superb bronzes and of porcelain ware. A number of bronze vases are included in this collection, which are the wonder and admiration of all visitors. They are of beautiful shapes, and are ornamented with such a profusion of engraving and chasing—the conceptions of which are so droll and intricate—that a photograph would be necessary to give an accurate idea of them. The work is unique and cannot be reproduced by the most skillful artificer in either Europe or America. The cheaper vases are cast, but the more elaborate ones are worked out with the hand. One of the largest vases is valued at \$2000, and is said to have required an amount of work in its manufacture equal to twenty-two hundred and fifty days steady labor of a single man. The variety of shape and ornamentation of the vases is very great and very remarkable. The art is peculiar to Japan, and has flourished there for several centuries. It is carried on in sixteen different places in the empire.

The porcelains of the Japanese department are fully equal to the bronzes. This is an old art, and attained perfection in Japan long before it was known in Europe. The Japanese designate their works of this kind by the names of the cities in which they were manufactured, or by the peculiarities of manufacture or decoration. The display of porcelains in this single department surpasses in beauty of forms and ornamentation the combined exhibit of every other nation in the building. One must see the collection here to realize this, but few will doubt the statement, having once made the comparison for themselves. At the front line is a pair of superb vases about ten feet high and valued at \$2500. The ground is a delicate blue and white, and the ornamentation consists of golden dragons and the daintiest landscapes. There are a number of articles in green, or scarlet and gold, of the class known as kaga ware, which is as brilliant as Bohemian glass. The banko ware is also very beautiful, its peculiarity being that the colors are worked through to the inner surface. It would be impossible to mention all the varieties of porcelain to be seen here. We can only speak in a general way of its wonderful beauty and brilliancy. A case of porcelain figures from Tokio attracts much attention.

They are caricatures of the manners of the various classes of Japanese society, and are exceeding droll, and at the same time thoroughly artistic.

The display of lacquered ware is immense, and one of the marvels of the Exhibition. The manufacture of this ware is a specialty in Japan and has attained perfection. The articles displayed here range from the tiniest trays, which may be bought for about fifty cents, to large and costly cabinets. The gem of the collection is a cabinet said to be two hundred and fifty years old, which is as exquisitely beautiful and as free from signs of wear as on the day it came from its maker's hands. It is valued at \$5000. Contrasting it with the other beautiful wares by which it is surrounded, one can see that it is superior to them. The official in charge of the exhibit states that the art is now on its decline in his country, and that the ancient masterpieces cannot be renewed. There are some curious vases made of elephant's tusks ornamented with lacquered work, and some other fine work in ivory.

The inlaid work is very fine, and a large collection of cabinets, work-boxes and European furniture ornamented in this manner is shown. These articles are not as expensive as the lacquered wares, but equal them in beauty and delicacy of finish. The Japanese have successfully imitated, and some claim that they have surpassed, the papier-maché of the French. A considerable display is made of richly carved furniture, wood carving being an art in which the Japanese excel.

Going southward we come now to the display of screens, which is large and interesting. These are of silk on light frames, and are painted and embroidered with scenes in the daily life of the people. The outlines of the figures and the landscapes are painted, and the costumes, faces, animals, and houses, etc., are worked out in relief with embroidery. One may find in these screens abundant means for a study of Japanese life and manners. The Japanese gentleman takes great pride in his collection of screens, which embody the best pictorial art of his country, and regards them as the European or

American does his gallery of paintings. The designs of the screens are often quaint and amusing.

A fine collection of rich silks and embroideries is shown, one exhibit from Yokohama being superb. Cotton and woollen goods are exhibited of an admirable quality. Samples of matting, which is largely manufactured in Japan, are also to be seen. Specimens of the papers made in the empire, the leathers, the inks, and the coloring materials of Japan, are shown, as are also samples of the woods, grains, and grasses of the country. The mineral products are also shown by numerous specimens, and the native animals and birds are treated in the same way.

Near the south wall is a large case representing a bazaar containing a number of painted plaster images illustrating the different costumes of all classes of the population of the empire. It is one of the most instructive portions of the whole exhibit.

Immediately behind it is an enclosure in which the Imperial Government exhibits its educational system. Here are models of the desks and school apparatus used, the work of the pupils, the text-books, philosophical instruments, and photographs and colored sketches of the principal schools. Compositions by the pupils in English, French, German, and Japanese are shown, and one is made fairly acquainted with the progress made by the empire in its effort to introduce the learning and civilization of Europe.

The visitor who makes even a hasty inspection of the display, of which we have given but a mere outline, must amend his ideas of Japan. We have been accustomed to regard that country as uncivilized, or half-civilized at the best, but we find here abundant evidences that it outshines the most cultivated nations of Europe in arts which are their pride and glory, and which are regarded as among the proudest tokens of their high civilization.

China.

The Chinese section is not quite half as large as that of Japan, and lies immediately west of it on the south side of the main aisle, extending back to the south wall of the building.

It is enclosed by a pavilion, the entrance to which is a copy of the portal of a celestial pagoda, gaudily painted and ornamented with hideous curled-up dragons, which, though ugly, are well carved. Over the entrance is a line in Chinese, said to mean "The Chinese Empire." The pavilion is constructed of various kinds of hard wood that grow in China, and is in itself an exhibit.

Every part of the enclosure is of the gaudiest character, and here and there rise tall pagodas and towers ornamented with the most brilliant colors. All the show-cases are in the Chinese style of architecture, and are as gay and odd-looking as the pavilion itself. The display gathered within the enclosure is rich, valuable, and exceedingly interesting. At the front entrance is a collection of fine vases of exquisite China ware, and opposite these a row of screens of the finest silk, covered with designs in embroidery, and having richly carved frames. Close by these begins the display of inlaid tables and stands and other articles of household use which runs through the whole exhibit. They are as handsome and as well executed as anything of the kind in the Japanese section, which is saying a great deal.

Just within the enclosure is a tall show-case in the form of a pagoda, in which are displayed some superb silks, gold cloths and embroideries. The silks are of the most delicate shades of color, and are of the finest quality.

There is a large exhibit of carved furniture, all in the Chinese style. The carvings are both artistic in design and well executed. Two elaborate bedsteads are exhibited, which are very handsome, and show that John Chinaman has an eye to solid comfort in the midst of all his love of gaudy colors and gingerbread ornaments.

The display of porcelain and pottery is large and handsome, and fully sustains the reputation of the celestials for skill in this branch of their industry. The lacquered wares shown are also very beautiful, but are not equal to those in the Japanese collection. There is a case of exquisitely carved articles in ivory, many of which have been purchased by the Pennsylvania Museum of Industrial Art. The bronzes, many of

which are old and curious, make up an extensive and interesting collection, and there is also an exhibit of rare old Chinese coins.

A tall pagoda or joss-house, in imitation of such buildings in China, forms a conspicuous part of the display. Near it are some fine porcelain tiles ornamented with queer Chinese figures. Cotton and hemp cloths, and cotton prints, stockings, Chinese shoes, hats, articles of clothing, fancy leather work, trunks, and toilet-boxes, and samples of native paper, musical instruments, minerals, specimens of native woods, wines, grains, flour, honey, wax, cotton, hemp, wool, and hair make up a large and interesting exhibit.

At the rear of the enclosure is a gaudy little structure of carved and gilded wood-work, with panels of scarlet silk, on which are painted scenes from Chinese life. It is devoted to the offices of the Chinese Commission.

A number of almond-eyed, pigtailed celestials, in their native costumes, are scattered through the enclosure, and you may for a moment imagine that you have put the sea between you and the Exhibition and have suddenly landed in some large Chinese bazaar.

The Orange Free State.

The Orange Free State is a Dutch republic situated in the southeastern part of Africa, and adjoins the English colony of the Cape of Good Hope on the northeast. It covers an area of over 70,000 square miles, and is a thriving and energetic little state. Its section in the Exhibition hall lies back of the Peruvian court, in the southwestern corner of the building. It is enclosed by a handsome pavilion painted in imitation of black walnut, and decorated with the national colors of white and yellow, and red, white and blue streamers.

The exhibit is entirely governmental, and is handsomely and compactly arranged, rendering the little court one of the brightest and most pleasing nooks of the "great show." The design is to show the resources, products and natural wealth of the country. Specimens of minerals, grains, leather and skins, and

samples of mohair, native woods, specimens of coal, and samples of wool make up the principal part of the exhibit. Cases of stuffed birds of rare and beautiful plumage, and collections of insects are placed at various points in the court, and a number of superb ostrich plumes are exhibited. An interesting feature is a case of the cream tartar fruit. There are also to be seen specimens of ivory, including two enormous elephant tusks, and a collection of pipes and other articles of native manufacture.

Tunis.

The Tunisian court stands in the rear of the Danish and Turkish sections, on the south side of the building. It is small, but is brilliantly ornamented, the principal structure being a large show-case at the rear end of the court on which the goods are arranged. The exhibit is largely the property of the Bey of Tunis. His Highness exhibits some pretty gilt furniture, a collection of fine woollen blankets and shawls, woven silks, jewelry, national costumes, native arms richly ornamented, some superb decorated saddles, resembling those of the Egyptian collection. In the Exhibition grounds he also exhibits two Arab tents, illustrating the domestic life and customs of the Arab sheiks and Bedowin. The Bey also sends a number of antique relics dug from the ruins of old Carthage, which is situated in his dominions.

Mexico.

The space assigned to the Mexican republic lies on the north side of the main aisle, and adjoins that of the United States on the west. It is enclosed by a handsomely ornamented pavilion of light wood, painted in a soft cream color, and designed in the Aztec style of architecture. The main entrance to this pavilion is opposite the easternmost of the soda fountains in the main aisle, and is a handsome arch draped with the arms of the republic in gilt set in the midst of a trophy formed of the national colors.

The Mexican exhibit is not as large as had been hoped, and scarcely shows the extent or variety of the natural resources and

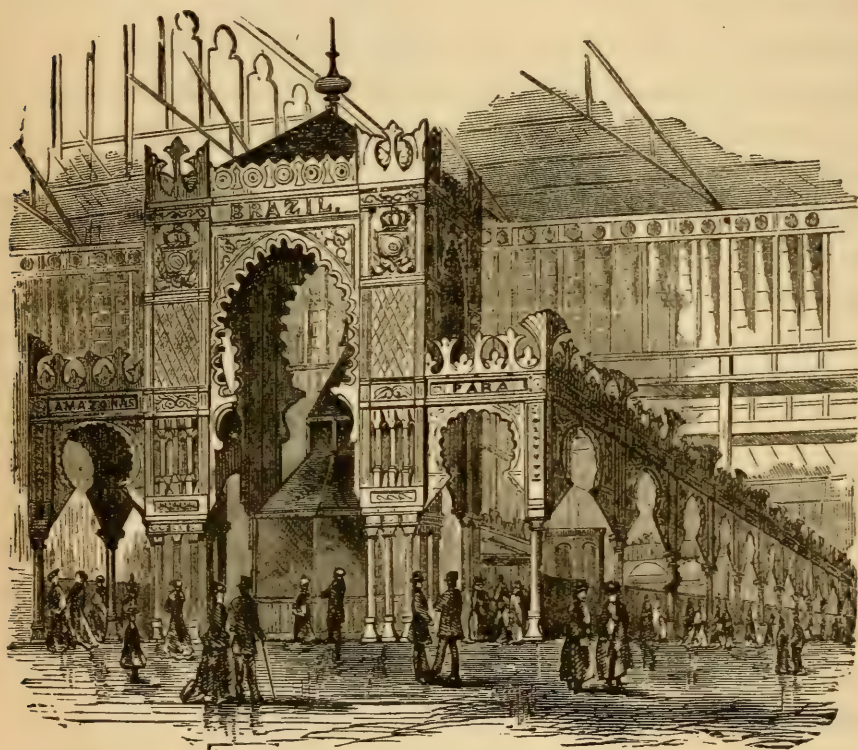
manufactures of the republic, but is still interesting, and should receive a careful examination. A very considerable part of the display consists of Mexican historical remains of the most interesting character. They give us a partial view of the civilization of the Aztec race, that curious people whose history is at once so perplexing and so sad.

The mineral exhibit is very large and very good, and shows the wealth of the leading mines of the country. A large specimen, weighing 1300 pounds, and composed of quartz and bromide of silver, is a prominent object in this collection, and large lumps of lead ore, iron ore, specimens of coal, native marble, a sample of a new mineral called libinstone, and specimens of the matter thrown up by the volcano of Ceboruco during a recent eruption, and specimens of native woods are tastefully arranged, and constitute an instructive display. Samples of buckskin clothing ornamented with gold and silver embroidery, such as the Mexican cavaliers wear, are shown, and each suit is valued at \$1000. There is a considerable exhibit of ready-made clothing, dressed and undressed leather, kid gloves, straw hats, woollen and cotton cloths, and papers; and some porcelain is shown which marks the beginning made by Mexico in this beautiful art. There are also some pretty silks in the collection. A full display is made of the medicinal plants of Mexico, and of the fibres of all the varieties of the agave. The native wines and cordials are also well represented. A great variety of ancient and modern national costumes is shown, including those of the Indians and mixed races. A number of educational and scientific works illustrate the efforts being made to diffuse knowledge among the Mexican people.

Brazil.

The Brazilian court is situated on the north side of the main aisle, between the Dutch and Belgian sections. It is enclosed by one of the most brilliant and noticeable structures in the building. It is a pavilion built in the Moorish style, and consists of a colonnade of wooden pillars, with brightly ornamented capitals and arches, supporting a superstructure of wood painted in various bright colors. This colonnade surrounds the entire

Brazilian section, and on three sides is nineteen feet high. Between the pillars are wooden screens six feet high painted in panels, the effect of which is very fine. The façade consists of clusters of pillars supporting the superstructure, as on the sides, but the columns are closer together and are decorated with gay colors and with glass tiles of a novel and attractive kind. These tiles have various rich designs, and are used to form the names of the different provinces on the frieze extending around the



ENTRANCE TO THE BRAZILIAN COURT.

structure. Over the principal entrance the word "Brazil" is placed in colored glass tiles. The central arch rises to a height of nearly forty feet, but the arches on the east and west of it are uniform in height with those along the sides of the pavilion. The pavilion is painted in the gayest colors, the principal being the national colors, green and yellow, and red and blue. Brazilian flags and streamers are draped along the front and fly from the prominent points of the structure.

The show-cases within the pavilion are of plate-glass orna-

mented with ivory and gold, and are very handsome. They are lined with a dark maroon-colored cloth, which adds to the richness of their appearance. No less than \$30,000 was expended by Brazil in the construction of her pavilion.

At the entrance stands a very large show-case placed on a square space paved with marble. It contains a beautiful display of artificial flowers made of the gay and brilliant plumage of the birds of Brazil, and near it is a collection of butterflies and brilliant insects.

Around the court are displayed photographs showing the geological formation and the scenery of the empire, and a series of topographical maps. The public works are exhibited in a number of finely-executed charts and plans.

Several cases of books and other specimens of the printer's art are to be seen here, showing what Brazil has done in this department, and the rise of her national literature is shown in the works of a number of her native authors, printed and bound in Brazil.

The native products of the empire are largely represented, and among them coffee holds the chief place, being the great staple of the country. Rice, cocoa, mandioc, ginger, yams, sarsaparilla, and many other tropical products, are shown in great abundance. The native woods, in which Brazil is wealthy almost beyond computation, are also largely shown, and among them we find the castor tree, rosewood, Brazil-wood, caoutchouc, cedars, logwood and mahogany.

An excellent display of furniture is also made, and the specimens are both wooden and wicker.

The rising manufactures of the empire are shown in the fine exhibit of woollen and cotton cloths, dress goods, laces, embroideries, silks, and straw and wool hats. A considerable display is also made of chemical manufactures. The display of porcelain and glassware is small. Leather, boots and shoes, saddles, and skins, form a considerable part of the collection.

There are also a number of antiquities; and the Indian tribes are represented by hammocks and other articles peculiar to themselves and their ancestors for centuries.

Altogether the Brazilian exhibit is handsome and deeply interesting, and is worthy of the leading nation of the southern half of the American continent.

Argentine Confederation.

The section assigned to the Argentine Confederation is on the south side of the main aisle and next to its western end. It is enclosed, and at the front stands a handsome circular pavilion. The exhibit is designed to represent the commercial, agricultural, and mineral wealth of the republic. The articles are tastefully arranged, and are attractive and worthy of a careful study.

The mineral exhibit includes the ores of gold, silver, lead, copper, and iron, galena, kaolin, sulphate of lime, quartz, marbles, coal, building stones, gypsum, clays for the manufacture of crockery, tiles, and bricks, graphite, soapstones, and other varieties. Specimens of the principal metals are also shown. There is a large collection of chemical manufactures, and a small one of glassware, porcelain, and pottery. The department of textile fabrics includes cotton and woollen goods, mats woven by State prisoners, fabrics made by Indians from native plants, clothing, laces, and embroideries. Silk spun and in cocoons is also exhibited in considerable quantities. Wool hats, and boots, shoes, and other leather goods, and samples of leather and skins make up a large part of the collection. The bows, arrows, clubs, and lances of the various Indian tribes, slings used by the hunters to catch cattle and alpaca on the "plains," and lassos used by the hunters of Buenos Ayres are also shown. A number of figures of Argentine peasants form an interesting part of the exhibit.

The display here is greater than any made by the Argentine republic at any previous World's Fair, and is in the highest degree creditable to both the government and the people of that country.

Chili.

The Chilian section stands at the western end of the Main Building, on the south side of the main aisle. At the front,

which faces the main aisle, is a circular pavilion, gayly painted, around the sides of which are arranged show-cases containing an extensive and valuable collection of the minerals of the republic. The animals of the country are represented by stuffed hides of the cougar, jaguar, llama, guanaco, and monkeys. There is also an exceedingly valuable and interesting display of old pottery and domestic utensils, agricultural implements, and weapons of war used by the Indian tribes.

Specimens of Chilian silks, raw and manufactured, are shown, and also some fine worsted work. A classified exhibit is made of the vegetable products, the native wines, and the leather of Chili.

Peru.

The Peruvian court is enclosed by a neat and tasteful pavilion decorated with the arms of the republic and the national colors, and stands at the western end of the building, immediately in the rear of the Chilian and Argentine sections. The entrance is from the west.

Around the sides of the pavilion the mineral wealth of the republic is faintly shown by a number of specimens. Gold, silver and precious stones are included in the collection. Quicksilver, copper, iron, lead, sulphur, saltpetre, and salt are exhibited in a variety of forms.

The principal manufactures shown are leather, soap, and sugar. The native wines and liquors are also extensively displayed. Cotton, cocoa, coffee, cinnamon, pimento, pepper, tobacco, Peruvian bark, indigo, sarsaparilla, vanilla, caoutchouc and a variety of drugs and dye stuffs are shown.

There is a large display of ancient pottery, the work of the aboriginal inhabitants of Peru, showing that they were far advanced in the arts and customs of civilization; and by the side of these is an exhibit of the dresses and weapons of the Indian tribes.

Hawaii.

The kingdom of Hawaii, better known as the Sandwich Islands, has a handsome pavilion, with two arched entrances,

situated against the south wall of the building immediately back of the Tunisian court.

The exhibit includes several specimens of native sugar, coffee, and native woods. The fibres of a number of trees—strong and tough—are also shown, and a considerable quantity of straw work makes up the display. There are a number of specimens of lava thrown out by the volcano of Kilauea, the largest now in action in the world. Manufactured articles from the native woods, and calabashes used by the natives to hold their food are among the articles exhibited. A fine collection of specimens of lava, mosses, and ferns is shown, and was made by Mr. Hitchcock, the special commissioner, during a residence of fourteen years in the islands. There are cases of beautiful native birds, and a rich display of pink and white corals, shells, and seaweed. Queen Emma exhibits a case of fans and feather-work, native millinery, and historical curiosities. Photographs of scenes in the islands are displayed about the enclosure.

Russia.

The Russian space is situated on the south side of the main aisle, between the Spanish and Austrian sections, and extends back to the south wall of the building. It is unenclosed, and but little effort has been made to ornament it. A handsome shield emblazoned with the imperial arms, and set in the midst of a trophy of Russian and American colors, is affixed to the pillar at the south side of the aisle. Along the front line is a row of lofty octagonal and square cases of dark oak and plate-glass, filled with rare and beautiful articles.

At the western end of the front line, Sazikoff, of Moscow, has two handsome cases containing a magnificent display of gold and silver articles for table service, personal use, and household ornament. They are richly carved, and some of them are enamelled in a masterly manner. There are a number of statuettes of solid silver, prominent among which is one of Peter the Great. The gem of the whole collection is a superb work in *reponssé*, representing the "Adoration of the Magi." It is

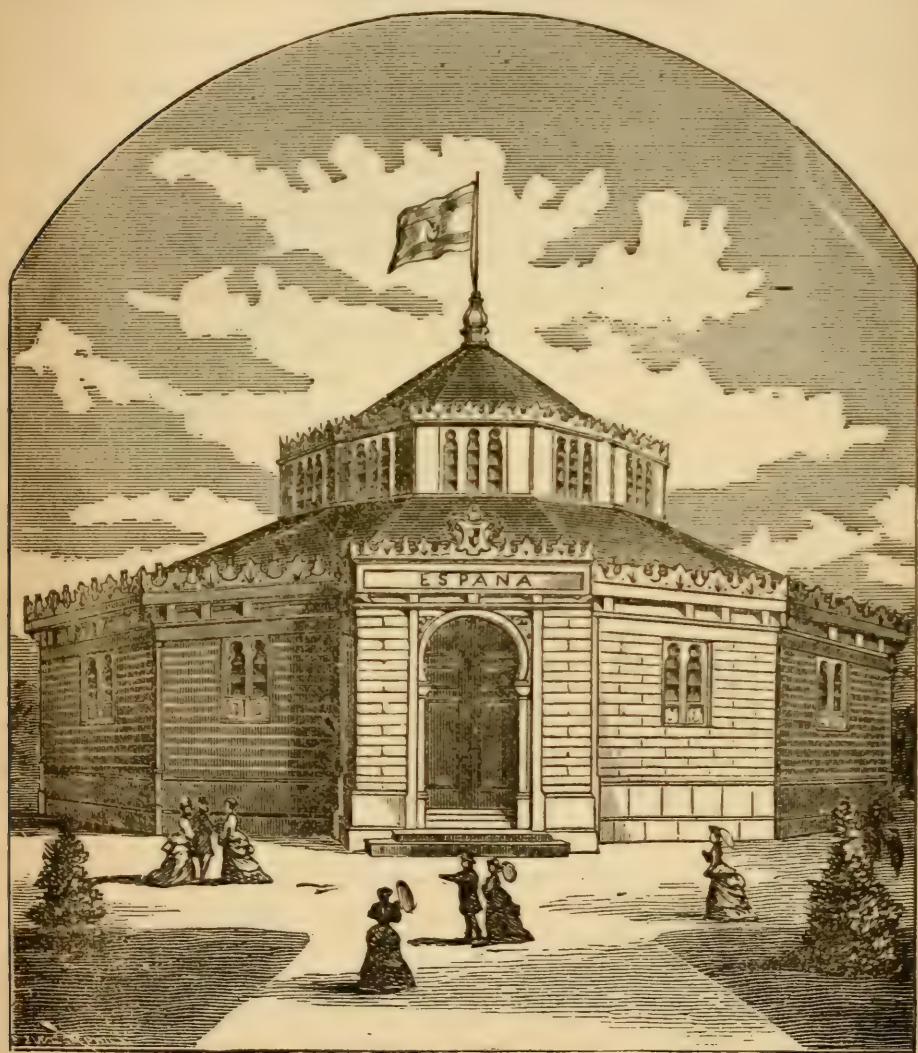
one of the most perfect specimens of this school of art in the Exhibition.

Near the east end of the front line, P. Ouchinnikoff, of Moscow and St. Petersburg, makes an equally handsome display of richly chased articles in gold and silver and enamels on gold and silver. Prominent in the collection is a fine altar-piece, representing the Saviour with the Gospel in his hand. The work is done upon a gold surface, and the portrait of the Saviour is in enamel of various colors. The effect of the whole is very rich and beautiful. A superb tankard made of a single piece of silver, with decorations in gilt, is shown. At the top is a small copy of the statue of Peter the Great, and around the sides of the vessel is a superb representation in high relief of the entry of Peter into Moscow after the battle of Pultawa. The tankard is valued at \$3000. A massive salver of silver with ornamentations in gilt, and a centre-piece carved with a representation of the Kremlin, is valued at \$2000.

At the east end of the line, Felix Chopin, of St. Petersburg, displays a collection of fine bronzes in the best style of the art. They represent scenes from the life of the Russian peasantry, and are much admired. A conspicuous object of this collection is an immense candelabra of gilt and porcelain, fully fifteen feet high, capable of holding one hundred candles, and with vases for flowers around the base. Opposite it is a gilt clock of peculiar design, about four feet high. The hours encircle a large globe of silver and move around it, and an angel in the act of flying points to the hour with one hand and towards heaven with the other.

Along the eastern border of the Russian section, Messrs. Hoessrich and Woerffel, of St. Petersburg, have an extensive and valuable display of articles in malachite and lapis lazuli. These are of an infinite variety, consisting of cabinets, mantels, tables, statuettes, clocks, caskets, candelabra, and some beautiful jewelry and small articles for personal use. One fine centre-table in gilt and malachite is valued at \$2400, and a large mass of malachite in the rough is held at \$4800.

Just back of the front line is a rich and large display of silks and velvets magnificently embroidered with gold, and cloth of gold with decorations of silver worked into it. These fabrics are superb, and are equal to anything in the Egyptian or Turkish exhibits.



THE SPANISH BUILDING.

Back of these is a large exhibit of furs, equal in quality and beauty to anything in the building; and stuffed specimens of fur-bearing animals are shown in connection with this display. There is a good exhibit of cotton and linen goods, and of hats and military caps.

In the centre of the section, the Russian American Rubber Company, of St. Petersburg, have a fine octagonal pavilion of ebony and plate-glass, containing a handsome collection of their goods. Opposite, on the west side of the court, a tailoring firm shows a case of uniforms of the different branches of the Russian army.

The exhibit of mathematical and philosophical instruments is small but very interesting, and is located near the southwest corner of the court. Immediately to the east of it is a case of ornamental cast-iron work. The collection consists of a number of statuettes, busts, vases, etc., the principal object being a copy of the statue of Peter the Great, at St. Petersburg. There is a softness about the work which is very pleasing, and it greatly resembles the darkest antique bronze. It is much lighter in weight than bronze, and much less expensive.

The paper makers have a small exhibit, and close by is an extensive and valuable collection of the minerals of the Russian empire. At the south end of the court is a case of inlaid caskets, boxes, waiters, etc., the work upon which is exceedingly beautiful. In the next case a bookbinder shows specimens of his work. The books are merchants' account books, and show the Russian system of bookkeeping. At the southeast corner of the court is a fine carved oaken billiard table, one of the handsomest in the Exhibition. There is an excellent though small exhibit of cutlery, and several excellent pianos form a part of the Russian exhibit. A number of carved oaken cabinets stand along the eastern line, where also may be seen a case of rich embroideries, worked on colored cloths with gold and silver threads.

There is a small exhibit of perfumes and soaps, and a few pieces of porcelain and majolica-ware complete the display.

Russia was one of the last of the European powers to take part in the Exhibition, and her space was not in complete order until near the last of June. Her display is at once unique and beautiful, and receives much praise from visitors.

Portugal.

Like the Russian, the Portuguese exhibit was not in order until the latter part of June. The section assigned to Portugal is on the south side of the hall, and immediately in the rear of the Turkish and Egyptian courts. It is about as large as the Egyptian section, and is enclosed with a line of handsome show-cases of wood, stained in imitation of black walnut, with entrances at the north, east, and west ends.

Along the southern wall the Portuguese department of public works exhibits a collection of topographical and geological maps and charts of the kingdom, with drawings of the principal harbors. In this section of the space is the display of glassware, pottery, and porcelain, which, though not large, is very good. Some fine dyes and specimens of woollen fabrics dyed in them are also shown.

The cases which form the east and west sides of the enclosure are filled with cotton and woollen goods, generally of a coarse texture. The blankets shown here are very good.

A good display is made of silk fabrics, of various kinds, and a case is also shown of cocoons and raw silk. Some of the silks are beautifully embroidered. A number of excellent specimens of wood-carving are shown, and a series of photographs of places in Portugal show some admirable work in this line.

A case containing flowers, baskets, ships, and other objects made of the fibre of the fig tree, from the island of St. Michael, in the Azores, attracts great attention. The material is exquisitely beautiful and the work very fine. There are a number of statuettes in colored plaster, representing different types of Portuguese brigands and peasants. At the northern end of the section is a collection of tinware, showing the fine quality of the native tin of Portugal, and here is to be seen the finest porcelain and glassware of this exhibit.

The Mineral Annex.

The space in the main hall being filled, a couple of long, narrow, wooden buildings were erected on the south side of the

Main Building. In these structures is shown a large and interesting collection of the minerals of the United States, prominent in which are a number of immense blocks of coal taken from the mines of Pennsylvania and some of the Western States.

The Carriage Annex.

The annex to the Main Building, devoted to the display of carriages and other articles, is situated on the north side of the Avenue of the Republic, just north of Memorial Hall. It is built of corrugated iron and glass, and is 346 feet long and 231 feet deep. The greater part of the space is taken up by American exhibitors.

The display of carriages in the American department is very fine, and includes vehicles of all classes, and several old-fashioned Concord stages. Wheels, hubs, spokes, harness, carriage hardware and fixtures, springs, etc., are displayed here, and make a handsome showing. The collection of carriages for children is also very pretty.

A number of railroad cars are exhibited in this building. The Pullman Palace Car Company show one of their handsomest parlor cars, and a superb hotel car, to both of which visitors are admitted. The latter shows the entire arrangement for providing passengers with meals cooked to order while the train is in motion. A boudoir and library car, built for the St. Paul & Rio Janeiro Railway of Brazil, is a model of beautiful workmanship and comfortable arrangement. It is a narrow gauge car, and smaller than the Pullman coaches by which it stands. Several other fine cars for ordinary use are exhibited, and show what the various railway lines of the country might do for the comfort of their passengers. Several magnificent street railway cars stand by the side of the larger coaches, and are beautiful specimens of workmanship.

A large part of the American department is devoted to an exhibition of stoves and heating apparatus of various kinds, tin and ironware, and house-furnishing goods. These make up a pretty and attractive display, and draw many visitors.

In the English department we notice several fine drags of the most elaborate style, and a number of broughams, coupés and a species of one-horse barouche. The English vehicles are all substantially made and are elegant and tasteful.

Canada exhibits her fine sleighs, which are much admired.

Italy sends two specimens of a curious little closed carriage.

The display is very fine, and the carriage annex is one of the most interesting halls in the Exhibition.

It is large and airy, and the articles exhibited in it are displayed to the best advantage. The beautiful work upon the wooden bodies of the carriages is especially noticeable for its beauty and skilful joining.

One of the pleasantest features of the hall is the view from the north entrance. You look down into the wooded depths of Lansdowne Valley, beyond which are the towers of Agricultural Hall and the pretty buildings on its slopes. There is generally a breeze stirring here, and you may seat yourself on the benches which the thoughtfulness of the Commission has provided, and enjoy as rural and as enchanting a view as the eye ever rested upon.



CHAPTER XIII.

MACHINERY HALL.

Description of the Building—The Interior—Conveniences for Visitors—Precautions Against Fire—The Corliss Engine—Distribution of Power—The American Display—Curious and Interesting Machines—The Steam-Engines—The First Steam-Engine in America—The Blast Furnace—The Sewing Machines—A Handsome Display—The Suspension Bridge Exhibit—A Monster Cotton Press—Weaving Machines—Making Watches by Machinery—Carpet Weaving—The Water Motors—The Locomotives—The Railway Exhibit—The Vacuum Pan—The Tobacco Factory—Making India Rubber Shoes—Making Candies by Machinery—The Massachusetts Marine—Among the Printing Machines—The Old Franklin Press—Printing the *New York Herald*—The Ice Yacht—American Machine Shops—Nail and Tack Making—The Hydraulic Annex—The Tank—The Cascade—The Hydraulic and Blowing Machines—The British Section—The Road Steamers—Iron Armor Plate—Weaving Machines—Railway Models—The Walter Press—The Sugar Mill—The Canadian Exhibit—The German Section—The Krupp Guns—The French Section—Silk Weaving—Lithographing—Belgian Machinery—The Well-Borer—The Swedish Section and Exhibits—The Russian Guns—The Brazilian Section—A Handsome and Characteristic Display.

MACHINERY HALL is designed for the exhibition of machinery in motion, and the second of the Exhibition buildings with regard to size. It stands immediately west of the Main Building, at a distance of five hundred and forty-two feet from it, and its southern wall is two hundred and seventy-four feet from the north side of Elm avenue. The length of the building is from east to west, and its north front is on the same line as that of the Main Exhibition Building, thus presenting a frontage of thirty-eight hundred and twenty-four feet from the east to the west ends of the Exhibition buildings upon the principal avenue within the grounds.

The machinery building consists of the main hall, fourteen

hundred and two feet long by three hundred and sixty feet wide, and an annex on the south side of two hundred and eight by two hundred and ten feet. The entire area covered by the building and the annex is 558,440 square feet, or about 12.82 acres. Including the upper floors the Exhibition space is about fourteen acres.

The principal portion of the building is one story in height, with the main cornice upon the outside about forty feet from the ground. The roof is seventy feet from the floor of the avenues, and forty feet from the floor of the aisles. The main entrances at the east and west are finished with handsome façades, consisting of a square tower at each side rising to a height of seventy-eight feet, with a tasteful entrance between them. The central entrance and the towers are each provided with light ornamental galleries, and over the central gallery a large eagle is placed, with a clock immediately beneath him. A similar projection with a similar façade stands at the ends of the transept upon the north and south sides of the building, giving to it a fine and picturesque effect; and in order to further relieve the monotony which would have resulted from the long unbroken lines of the exterior, other projections have been introduced upon the north and south sides of the building, with tasteful façades. A chime of thirteen bells, representing the thirteen original States, is hung in the northeast tower of the building. They weigh twenty-one thousand pounds, the largest weighing over three thousand pounds and the smallest three hundred and fifty pounds. They cost \$12,000, and were cast by Henry McShane & Brother, of Baltimore.

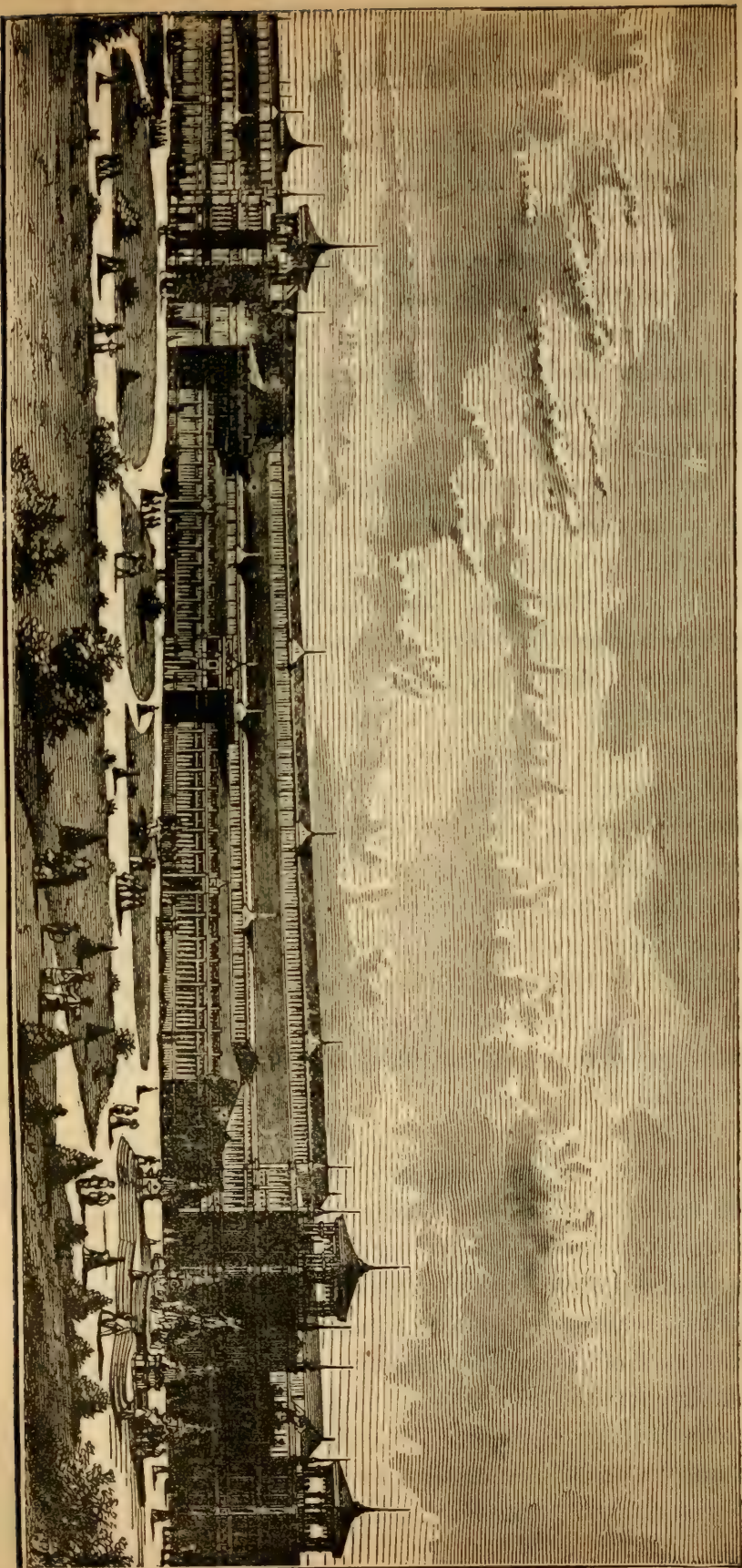
The building is painted in a light and pleasing blue, with ornamentations in other colors. As its length is eighteen times its height it has necessarily a low and "squat" effect, but the general appearance is pleasing, and the structure is so admirably adapted to the purposes it is designed to serve that criticism is disarmed. While there is nothing mean or shabby about it, it is plain and simple, but little effort having been made at ornament. The building is in perfect good taste throughout, and while it is not as handsome or as imposing as its gigantic

neighbor, the Main Exhibition Building, it is still attractive and pleasing, and the gazer is profoundly impressed with its expression of vastness.

The eastern doors open upon the grand plaza at the main entrance to the grounds, and form the principal approach from the street cars, the Pennsylvania Railroad Depot and the Main Exhibition Building. The western doors lead to the Total Abstinence Fountain and to George's Hill and the buildings clustered about its feet.

The arrangement of the ground-plan is very simple. It shows two main avenues, each ninety feet in width and thirteen hundred and sixty feet long, with a central aisle between them and an aisle on either side. Each aisle is the length of the avenues, and is sixty feet in width, thus making the aggregate width of the avenues and aisles three hundred and sixty feet. At the centre of the building is a transept ninety feet wide, which at the south side is prolonged beyond the main building to the southern end of the annex. At a distance of thirty-six feet from the main hall a series of aisles extend on either side of the transept for a distance of two hundred and eight feet to the southward, forming with it the annex for hydraulic machines. These aisles are sixty feet in width. The promenades in the avenues are fifteen feet wide; those in the transept twenty-five feet wide, and those in the aisles ten feet wide. All other walks extending across the building are ten feet wide, and lead at either end to exit doors.

The foundations of the building are piers of solid masonry. "The superstructure consists of solid timber columns supporting roof trusses, constructed with straight wooden principals and wrought-iron ties and struts. As a general rule, the columns are placed lengthwise of the building, at the uniform distance apart of sixteen feet. The columns are forty feet high to the heel-block of the ninety feet span roof trusses over the avenues, and they support the heel of the sixty feet spans over the aisles at the height of twenty feet. The outer walls are built of masonry to a height of five feet, and above that are composed of glazed sash placed between the columns. Portions of the



MACHINERY HALL—INTERNATIONAL EXHIBITION.

1402 feet in length and 360 feet in width.

sash are movable for ventilation. Louvre ventilators are introduced in continuous lengths over both the avenues and the aisles. The building is lit entirely by side light, and stands lengthwise nearly east and west."

Machinery Hall was the first completed of the Exhibition structures. The contract for its erection was made on the 27th of January, 1875, and the work was immediately begun. It was completed on the 1st of October, 1875, and was turned over to the Board of Finance about the close of the year. The cost of the building was \$542,300. The engineers and architects were Henry Pettit and Joseph M. Wilson, of Philadelphia, and the contractor, Philip Quigley, of Wilmington, Delaware. The wrought and cast-iron work used in the building was furnished by Pusey, Jones & Co., of Wilmington, Delaware.

The building is fitted up with especial care for the comfort and convenience of visitors. Water-closets are placed at the east and west ends, with attendants. Rolling-chair stations are located at the main entrances, and télégraph offices are established at prominent points. Stands for the sale of the official catalogue are placed in the central aisle, and letter-boxes are scattered throughout the building. The fire service is perfect, alarm stations being placed at regular intervals, each with its proper number, and Babcock extinguishers are scattered over the building ready for instant use. At the north end of the transept is a restaurant, the proprietor of which promises to furnish a good dinner for the moderate sum of fifty cents. Adjoining the restaurant is a confectionery, and by the side of this the pop-corn man has a tasteful stand, from which he does a thriving business in this peculiarly American eatable. Soda-fountains are placed at several points in the building, and are under the same management as those in the other halls.

The interior decorations are simple, the roof and pillars being painted in light colors, the object being to render the interior as light as possible.

From the gallery one looks down upon a busy scene. The great engine in the centre drives several miles of shafting and

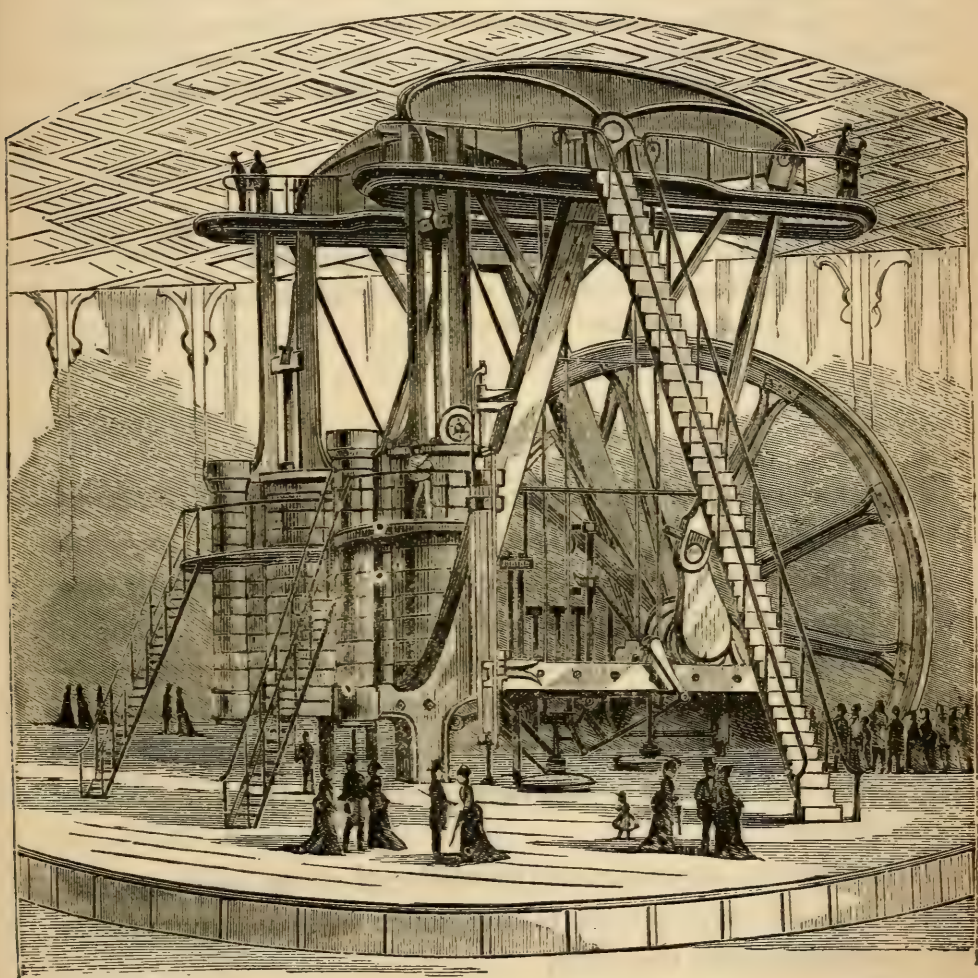
belting, and the hall resounds with the hum and click of the machinery in motion.

No fires or furnaces are allowed in the hall. The boilers of the great Corliss engine are placed in a separate building on the south side of the hall, and steam is introduced into the hall by a service of pipes.

The motive power for all the machinery in motion in this vast hall is a double-acting duplex vertical engine, erected by Mr. George H. Corliss, of Providence, Rhode Island, its inventor. It stands in the centre of the hall, and is built upon a platform fifty-six feet in diameter, and three and one-half feet above the floor of the hall. The engine rises to a height of forty feet above the platform, and is the most conspicuous object in the hall. "It has cylinders of forty-four inches in diameter and ten feet stroke, the peculiar variable cut-off arrangement being actuated by the governor, as common in the Corliss engines. Between the vertical engines is a fly-wheel of fifty-six tons weight, thirty feet in diameter and twenty-four inch face; it makes thirty-six revolutions per minute, the rate being kept equal by means of the governor cut-off, which immediately responds to any change in duty, owing to the throwing off or on of machines either singly or embraced in a whole section of the building. The tubular boilers are twenty in number, in a separate building, and each represents a nominal power of seventy horses, the work of the engine at sixty pounds pressure being about fourteen hundred horse-power. The fly-wheel has cogs on its periphery, which match with cogs on a pinion which rotates a line of underground shafting, and this by means of mitre-gearing rotates other underground shafts, so that motion is communicated to eight points in the ground-plan at the transept, at which are pulleys from which belts rise through the floor and thence pass around primary pulleys on the eight principal lines of shafting, which reach from the transept to the extremities of the east and west end of the building. The sunk shafting, its mitre-gears, pillow-blocks and pulleys, weigh two hundred tons." The work on the engine was completed on the 10th of April, the day promised by its inventor, and the entire

cost of its construction—\$200,000—was borne by Mr. George H. Corliss.

Eight main lines of shafting are provided for the machinery in the avenues and aisles, the larger portion being speeded to one hundred and twenty revolutions per minute, and one line



THE CORLISS ENGINE IN MACHINERY HALL.

to two hundred and forty revolutions per minute, principally for the wood-working machines, which occupy the larger part of the west end of the southern aisle. With the subsidiary lines, the length of shafting is estimated at 10,400 feet, each main line of six hundred and fifty feet transmitting one hundred and eighty horse-power to the various machines connected with it.

The exhibit displayed in Machinery Hall is classified by the Centennial Commission as follows :

DEPARTMENT V.—MACHINERY.

- 500—509....Machines, Tools, etc., of Mining, Chemistry, etc.
- 510—519....Machines and Tools for working Metal, Wood and Stone.
- 520—529....Machines and Implements of Spinning, Weaving, etc.
- 530—539....Machines, etc., used in Sewing, making Clothing, etc.
- 540—549....Machines for Printing, making Books, Paper Working, etc.
- 550—559....Motors, Power Generators, etc.
- 560—569....Hydraulic and Pneumatic Apparatus.
- 570—579....Railway Plant, Rolling Stock, etc.
- 580—589....Machinery used in preparing Agricultural Products.
- 590—599....Aerial, Pneumatic and Water Transportation.

Machinery and Apparatus especially adapted to the requirements of the Exhibition.

The United States.

The space occupied by the United States covers about three-fourths of the area of Machinery Hall, and extends from the western end entirely across the hall to a point nearly half way between the transept and the eastern doors. Being at home, the American exhibitors were naturally the first to have their machinery in readiness. The machinery displayed covers a wide range, extending from the most delicate machines for the manufacture of watches to the most powerful trip-hammers and rolling-mills.

We begin our inspection at the west end of the building, and start from the western end of the south aisle and pursue our way eastward along this aisle.

On the south side we notice an extensive collection of gas meters and kindred machines. These are very handsome and complete in every detail, and the visitor can but wonder that such pretty and attractive things should be such an unending source of trouble to every householder. The whole system of registering the consumption of gas is shown, but we are not treated to an exhibit of the method of making a meter register

more gas than is burned. That is a secret which the gas companies do not care to make public.

A large collection of machines for making illuminating gas from naphtha is shown beyond the gas meters, the largest exhibit being made by the Springfield Gas Machine Company, of Massachusetts, whose machines are admitted to be the best and safest in use.

Beyond the gas machines the Hagner Drug Milling Company, of Philadelphia, exhibit a pair of double-run flaxseed chasing mills, which attract considerable attention by their size and excellent workmanship. To the east of this is a large frame model of an anthracite coal-breaker, showing the process of crushing coal and separating the different sizes for the market.

A fine display of steam-drills comes next, and below these is a blast-furnace, with plans showing its operation. A capital display is made of steam-engines, stationary and portable. The Atlantic Mills, of Philadelphia, show some powerful machinery, and below these the scroll-saw men are at work with their machines cutting out scroll work in wood. Some of these saws are driven by steam and some by foot-power. A handsome specimen of their work is a "Centennial clock," the frame of which is made of wood sawed in this way.

We have now reached the transept, and turn back to examine the display along the north side of the aisle. We are attracted at once by the exhibit of barrel, hoop and stave-making machinery in operation. These machines cut out the staves and hoops and set up the barrels and head them in an exceedingly short space of time.

Close by is an automatic shingle-maker, which can turn out 25,000 shingles in a day; and next to it is a "Dovetailing, Carving, Moulding and Panelling Machine," exhibited by the Battle Creek Machinery Company, which is one of the curiosities of the Exhibition. Beyond these machines William Cramp & Son, of Philadelphia, exhibit two fine marine engines. In the next space J. W. Griffiths, of New York, exhibits a

machine for bending wood, and shows by its operation the process of bending stout wooden beams for ships' frames, or for arches.

We are at the west end once more, and pass into the south avenue. As we move down this avenue we confine our inspection to its south side, and notice first a large road steam-engine of American make. It is the invention of George W. Fitts, of Philadelphia, and compares favorably with the English steamers at the other end of the hall. Adjoining this space is one occupied by Wm. Andrews, of Williamsport, Pennsylvania, who exhibits a number of circular and straight saws of the best workmanship. Here is to be seen the first saw-maker's anvil ever brought to the United States. It was brought from London in 1819, by an uncle of its present owner, who had used it in the old country, and has been in steady use for over seventy years in this family. It looks as if it was good for seventy years more of work.

We now reach an extensive collection of saws, moulding-machines and steam engines, noticeable among the latter being the splendid automatic cut-off and throttling steam-engines of the Buckeye Company, of Salem, Ohio. In the midst of this group Cornell University displays some of the results of her department of mechanical engineering in the work of her students and in a fine collection of machinery. Here are a foot-lathe, magneto-electrical machine, measuring machine and steam-engine, all of which are handsome pieces of workmanship.

Having reached the end of the avenue, which is here closed in by the space assigned to an exhibitor, we notice on the north side a section of the first steam-engine ever introduced into the United States. This venerable relic is exhibited by Messrs. D. M. Meeker & Son, of Newark, New Jersey. Its history is so interesting that we give it here as related by Mr. Justice Bradley, of the Supreme Court of the United States, in a letter to Mr. D. M. Meeker :

“WASHINGTON, September 20th, 1875.

“DAVID M. MEEKER, ESQ.:

“*Dear Sir:* The steam-engine of which you possess a relic was, as you suppose, the first ever erected on this continent. It was imported from England in the year 1753 by Colonel John Schuyler, for the purpose of pumping water from his copper mine opposite Belleville, near Newark, New Jersey. The mine was rich in ore, but had been worked as deep as hand and horse power could clear it of water. Colonel Schuyler, having heard of the success with which steam-engines (then called fire-engines) were used in the mines of Cornwall, determined to have one in his mine. He accordingly requested his London correspondents to procure an engine, and to send out with it an engineer capable of putting it up and in operation. This was done in the year named, and JOSIAH HORNBLOWER, a young man, then in his twenty-fifth year, was sent out to superintend it. The voyage was a long and perilous one. Mr. Hornblower expected to return as soon as the engine was in successful operation. But the proprietor induced him to remain, and in the course of a couple of years he married Miss Kingsland, whose father owned a large plantation adjoining that of Colonel Schuyler. The late Chief-Justice Hornblower was the youngest of a large family of children which resulted from this marriage. Mr. Hornblower's father, whose name was Joseph, had been engaged in the business of constructing engines in Cornwall from their first introduction in the mines there, about 1740; and had been an engineer and engine-builder from the first use of steam-engines in the arts, about 1720. The engines constructed by him and his sons were the kind known as Newcomen's engines, or Cornish engines. That brought to America by Josiah was of this description. Watt had not then invented his separate condenser, nor the use of high pressure. But it is generally conceded that, for pumping purposes, the Cornish engine has still no superior.

“After 1760 the Schuyler mine was worked for several years by Mr. Hornblower himself. The approach of the war, in 1775, caused the operations to cease. Work was resumed,

however, in 1792, and was carried on for several years by successive parties. It finally ceased altogether early in this century, and the old engine was broken up and the materials disposed of. The boiler, a large copper cylinder, standing upright, eight or ten feet high, and as much in diameter, with a flat bottom and a dome-shaped top, was carried to Philadelphia. The relic in your possession was a portion of the cylinder, and was purchased by some person in Newark.

"In 1864 I met an old man named John Van Emburgh, then a hundred years old, who had worked on the engine when it was in operation in 1792. He described it very minutely and, I doubt not, accurately. It is from his description that I happened to know the kind of engine it was; although, from the date of its construction and the use to which it was put, there could have been but little doubt on the subject.

"What changes have been wrought in one hundred and twenty-two years! What mighty power has been created on this continent, in that time, by the multiplication and improvement of the steam-engine! We may well look upon this relic with a sort of superstitious veneration, and, looking forward as well as backward, wonder what another century will bring forth!

Respectfully, your obedient servant,

"JOSEPH P. BRADLEY."

Leaving the south avenue at its western end, we pass around into the central aisle and continue our inspection on the south side of that aisle. We pass a number of vertical and other steam-engines, and pause to examine the immense high speed blowing engine erected by the Weimar Machine Works, of Lebanon, Pennsylvania. This fine engine has a capacity of 5000 cubic feet per minute at ten pounds pressure. The same company also exhibit a section of an apparatus for charging a blast furnace.

Below this is a display of fire-engines, three of which are handsome steamers, and a case of firemen's hats, overhauls, etc. Beyond the engines a fine hook and ladder carriage is placed. Several old-fashioned hand-engines are included in the display,

and look odd indeed beside the glittering steamers. Passing on we come to the display of chemical fire-extinguishers, the largest and handsomest exhibit being made by the Babcock Fire-Extinguisher Company, whose machines are used in the Exhibition buildings.

Farther on, I. P. Morris & Co., of the Port Richmond Iron Works, Philadelphia, exhibit a large and complete blast furnace which towers to the roof, high above all the surrounding objects. Near the intersection of the aisle with the transept, E. M. Boynton, of New York, has a handsome pavilion of black walnut, velvet and gilt, ornamented with specimens of his saws. It is one of the most conspicuous objects in the hall, and is admirably suited to the display of the articles it contains.

Turning westward again, and crossing to the north side of the aisle, we notice a handsome display of paintings and models of the steamers of the American Line, from Philadelphia to Liverpool, made by the steamship company.

The north side of the central aisle, from the transept westward, is taken up almost entirely by the exhibit of the sewing machine manufacturers. All the sewing machines of the country are represented here, and the display made by them is one of the most attractive features of the Exhibition. The spaces occupied by the various manufacturers stand side by side, and are fitted up in the handsomest style. Rich native woods and costly hangings are used in the construction of the enclosures and pavilions of the various manufacturers, and neither expense nor taste has been spared to render these as brilliant and imposing as possible. Each firm exhibits its best machines, finished in the handsomest style, and displays conspicuously samples of fine needlework done by its operators. The machines are operated by a number of young ladies, and are shown to all who are disposed to examine them. The handsomest displays are made by the Wilson, Weed, Wilcox & Gibbs, Howe, Domestic and Home Companies. The Howe pavilion contains a portrait of Elias Howe, the inventor of the sewing machine, and the pavilion of the Home Machine is the richest and most beautiful structure in Machinery Hall.

To the west of the sewing machines are the knitting machines, the workings of which attract much attention; and beyond these is a handsome model of a steam tug, with an exhibit of improved screw propellers for steam vessels, and we enter once more the space devoted to steam-engines. Among these we notice a machine for ditching and draining, exhibited by Randolph Brothers, of New Jersey. Several sizes of this machine for horse and steam power are made. The largest size will dig eight cubic yards per minute in clay soil, or as much as a single man can dig in a day. A two-horse machine, weighing 1600 pounds, will do the work of forty men. The next space is occupied by Pusey, Jones & Co., of Wilmington, Delaware, with a large display of machinery of various kinds; and just beyond N. W. Twiss & Co., of New Haven, exhibit a number of beautiful vertical engines. The yacht engine exhibited here is one of the prettiest and most complete machines in the building.

We are at the west end of the aisle, and pass around to the north avenue, at the western end of which, on the south side, Messrs. Poole & Hunt, of Baltimore, have a large display of machines of various kinds. Eastward of this exhibit, on the same side of the avenue, the steam-engines stretch away for a considerable distance. Beyond these the American Iron Works of Pittsburgh, make an extensive display of wheels, shafting, pulleys, bar, sheet, plate iron, and T rails.

Immediately to the south of this exhibit a loom is at work weaving suspenders for the National Suspender Company, of New York. You may have a pair woven with your name while you wait for them.

Below the American Iron Works, is one of the handsomest displays in the hall. It is the exhibit of the John A. Roebling's Sons Company, of Trenton, New Jersey, manufacturers of wire rope and suspension bridge cables. Here are shown sections of the cables of the suspension bridges over the Niagara at Niagara Falls, and those over the Ohio at Pittsburgh and Cincinnati, which were made by this firm. Handsome drawings of these bridges are displayed. A splendid plan of the suspen-

sion bridge now in course of construction over the East river, at New York, forms one of the most conspicuous objects of the collection, and beneath it is a section of the cable for this bridge now being made by this firm. It is composed of six thousand, No. 7, galvanized steel wires. The ultimate strength of this cable is 22,300,000 pounds. A model of a large merchant ship rigged with wire rope is exhibited, and samples of the wire ropes and other articles made by the company are to be seen also.

Beyond this space is an enormous direct acting steam and hydraulic cotton press, from the Taylor Iron Works, of Charleston, S. C. It is constructed entirely without pumps, and has but a single valve. It is the most powerful cotton press in the world, and among its other feats is said to have recompressed a bale of cotton into two-thirds of its original size.

We now enter a region of looms and cotton machinery, and pause to notice the process of making and winding spool cotton as shown by the Willimantic and Hopedale Companies, of Connecticut and Rhode Island. Beyond these machines a large power-loom is weaving corsets for the United States Corset Company. A lady operates the machine, and a number of her sex are generally interested lookers-on. Next door, a larger sized loom is weaving jute cloth. Both of these machines are the Lyall Positive Motion Loom, the accuracy and rapidity of the work of which are wonderful.

In the next stand on the east, the Pyramid Pin Company, of New Haven, Connecticut, have a machine, in charge of a little girl, at work sticking pins in papers. This machine is capable of sticking 180,000 pins per day in this way.

Next below is one of the most interesting exhibits in the hall. The American Watch Company, of Waltham, Massachusetts, have a work-shop, in which a number of their most experienced and skilful workers are engaged in the manufacture of watches by machinery. Every part of the process is illustrated by the work done here. The machines used are of the most delicate and perfect character, and the operations are marked by an accuracy and skill which elicit the warm praise of the inter-

ested spectators who surround the workshop. The Waltham watches have long been regarded as the best of American manufacture, and the universal testimony of all who have used them is that they are unexcelled by any in the world.

Adjoining the shop of the Waltham Company is a curious machine for engraving patterns for embroidery and laces.

The transept is reached again, and we turn back westward again. On the right, opposite the Waltham shop, the Nonotuck Silk Company, of Florence, Massachusetts, show the process of labelling spools and winding machine twist and sewing silk for the market. In the next space beyond William Wood & Co., of Philadelphia, have a loom at work weaving cotton cloths; and above this the Monitor Carpet Mills, of Philadelphia, have a power-loom at work weaving carpets without the use of a shuttle. Two power-looms are engaged beyond this one, weaving Brussels carpets. The Falls of Schuylkill Carpet Mills operate one of these looms, and thus illustrate the process by which the beautiful carpets displayed by them in the Main Building are woven. Going westward we pass several looms engaged in weaving cloth, and a number of wool-carding machines, and notice a fine Murkland power-loom at work weaving ingrain carpets for Messrs. John Bromley & Sons, Philadelphia. The rapidity with which this loom does its work is surprising. With a competent operator it will run off thirty-five yards of carpeting in a working day. Beyond this is the Garnett machine, which takes the waste of woollen factories and works it up into fibre again, washing it clean at the same time.

An interesting display is made of meters for registering the consumption of water; and the exhibit of steam-gauges is both large and handsomely arranged. Here is seen a little registering apparatus which records every revolution of the Corliss engine at the distant centre of the hall. Near the door is a hydraulic ram of novel construction, exhibited by the Dexter Spring Company of Pennsylvania. It furnishes its own power and is a perfect automatic pump.

From the western end of the avenue we have been traversing

we pass into a small aisle to the north of it. The first notable exhibit is that of the Stillwell & Bierce Manufacturing Company, of Dayton, Ohio. They exhibit a boiler for use in limestone countries, which removes the deposit of lime from the water and prevents it from encrusting the interior surface of the boiler. Beyond this space is the Backus Water Motor, which would seem to be the long desired motive power for running sewing machines. Beyond this is a most interesting exhibit of asbestos, a mineral which has the peculiar property of being a non-conductor of heat. Farther on the Westinghouse Air-brake and Henderson's Hydraulic Brake for railroad cars make large and interesting displays of the merits of their respective machines. At the lower end of the aisle, on the south side, is a tall machine for drying paper-collar stock, and below this machines for drying cotton and worsted dyed goods.

We have reached the transept once more, and enter upon the section devoted to the display of locomotives, which is one of the most prominent as well as one of the most attractive features of the Exhibition. About ten locomotives built by the Baldwin Works, the Pennsylvania and Reading Railroad Companies, and other well-known manufacturers, make up the collection, in which the latest improvements and the highest skill in this branch of the mechanic arts are shown. A narrow gauge locomotive and one for mining purposes are included in the collection. The finishing of these splendid machines is handsome, but substantial. They are no finer in appearance than is usual, and represent faithfully the superior appearance as well as construction of the American locomotive.

Leaving the locomotives behind, we pass to the north aisle, where we notice a large display of machinery for mills by J. T. Noye & Son, of Buffalo, New York, beyond which is an immense hoisting engine for mines, and a display of mining machinery, including a powerful Cornish pumping engine made by the Dickinson Manufacturing Company, of Scranton, Pennsylvania.

Both sides of the aisle are now occupied by the display of the scale makers. All the principal manufacturers are represented,

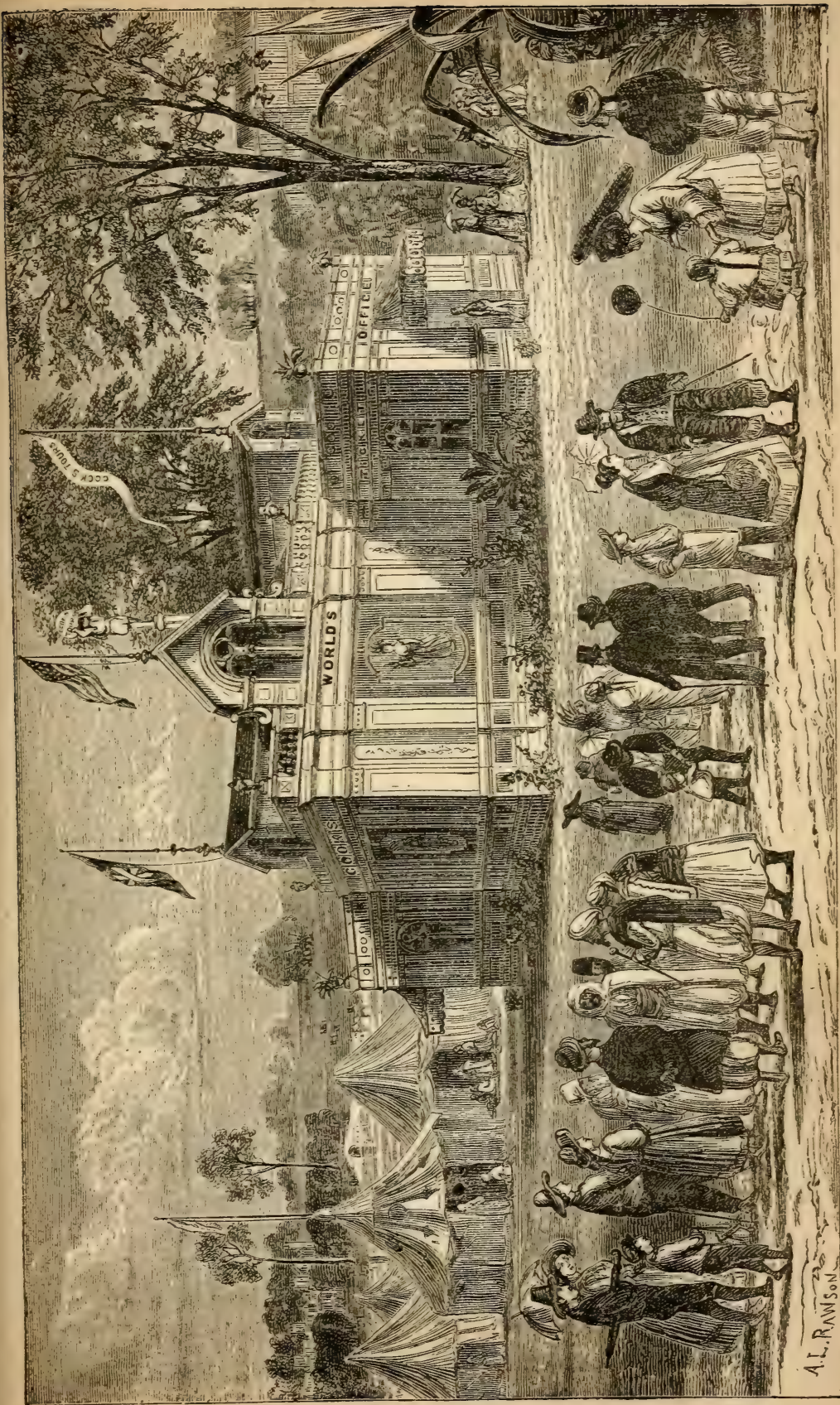
and this department is one of the largest and handsomest in the hall. The various styles of scales are shown—platform scales, those for counters, letter scales, and balances. Every article is finished in the handsomest and showiest manner, and with a generous disregard of expense. A number of the makers show platform scales adjusted to the standards of the principal nations of Europe.

Then follows, on both sides of the aisle, a collection of car-wheels, trucks, springs, railroad iron and rails, switches, seats for cars, and other railroad material, in the midst of which the Wharton Patent Switch makes an interesting showing of its workings. It is claimed for this switch that it is automatic in its movements, and that where it is used accidents are impossible.

On the left hand side, above the Wharton Switch, the Baxter Steam-Engine Company make a handsome exhibit of their famous engines; and on the opposite side of the aisle is a handsome arch made of lapwelded wrought-iron tubes, ornamented with the names of the States, and exhibited by the National Tube Company as specimens of their workmanship.

On the north side of the aisle, at the western end of the building, is a huge vacuum pan for clarifying sugar, exhibited by the Colwell Iron Works, of New York. It towers to a height of thirty-five feet above the floor of the hall, and the vacuum pan has a diameter of ten feet. There are two platforms or stories one above the other. On the ground floor is a powerful horizontal engine working an air-pump to make the vacuum in the pan. The air-pipe connecting with the top is some eighteen inches in diameter, of iron, and has several drums. Underneath the pan is a large circular valve to run off the product of evaporation. There are also connected with this drying pan sugar boxes to receive the sugar and moulds for moulding the sugar loafs. The whole apparatus is of the most complete description, and is a fair sample of the vacuum pans used in the largest sugar refineries in Cuba or Louisiana.

We pass around into the north aisle and start eastward again, noticing first, on the right, or south side of the aisle, a large collection of washing, wringing, and mangling machines



COOK'S WORLD'S TICKET OFFICES, CENTENNIAL GROUNDS.

of every kind and description, to run by hand or by steam-power. On the opposite side of the aisle a large machine for printing wall paper is shown by Messrs. Howell & Brothers, of Philadelphia, the largest manufacturers of wall paper in the United States. Diagonally opposite this machine a number of glass-blowers are at work making fancy articles of glass by means of the blow-pipe. The left hand side of the aisle is taken up for a considerable distance by machinery for making paper in operation, and on the other side a cracker-making machine is at work. Below the last are several machines engaged in the manufacture of fine candy *bon-bons*, and beyond these, on both sides of the aisle, we notice machines for butchers, bakers, and flour mills.

Opposite these, on the north side of the aisle, is a small model of an old Virginia tobacco factory. All the operations of manufacturing chewing tobacco are shown here, with the exception of the flavoring process. Four negro men are at work twisting the rolls from the leaves, and these rolls are pressed into the plugs of commerce while the visitors look on. The negroes, as they work, sing the songs and hymns which are familiar to those who have visited the tobacco factories of the South. The establishment is the exhibit of Mr. Albert Ordway, of Richmond, Virginia.

Below the tobacco factory is a pretty display of small mills for grinding coffee and spices, below which the butchering machinery greets us again, and still farther east, on the north side, the process of making India rubber shoes is illustrated by machinery at work. The various stages of the process of working up the soft mass of rubber and moulding it into shoes is exceedingly interesting, and the visitor may order a pair of shoes here and have them made under his own observation while he waits for them.

The south side of the aisle, opposite the tobacco and India rubber works, is occupied by an exhibit of French burr mill-stones and wheat-cleaning machines. Below these is a large centrifugal sugar draining and drying machine in operation, exhibited by H. W. & R. Lafferty, of Gloucester, New Jersey.

Diagonally opposite, on the north side of the aisle, below the rubber works, Messrs. Whitman & Son, the well-known Philadelphia confectioners, make a practical exhibit of their process of preparing their *bon-bons* and fine candies. These are made and sold here daily.

At the intersection of the aisle with the transept is a restaurant, which appears to be doing a thriving business, and which offers good hot dinners for fifty cents. Immediately in front of the locomotives, and before the door of the restaurant, is the stand of the pop-corn man, already referred to in another part of this chapter.

We cross the transept, and continue on our way down the north aisle. On the east side of the transept and extending eastward along the north aisle for some distance is the exhibit of the Massachusetts marine prepared by the Commissioners of that State. It occupies a large stand handsomely draped with flags and streamers, and consists of models of all the various kinds of sailing and steam vessels, both old and new style, owned in the ports of Massachusetts. Here is a fishing schooner, with her crew holding the lines which have been thrown overboard, a graceful yacht, a clipper ship, man-of-war, and whaler, each one complete in its way. The collection includes models of keels, fixtures of various kinds for vessels, steering gear, diving armor, and life-saving apparatus. The articles are arranged with great taste, and the collection constitutes one of the most conspicuous displays in Machinery Hall.

On the opposite side of the aisle the type-writer, an ingenious machine for printing letters or manuscripts instead of writing them with the pen, is at work, and beyond it the system of setting up music type is shown.

Passing on we enter the department of printing machinery. Here are presses of all kinds and of every make, from the little hand press designed for amateurs, to the great Bullock machines which strike off 20,000 copies of the New York *Herald* in an hour. The presses stand on both sides of the aisle, and extend over to the north avenue.

In a prominent space near the northern wall we notice a splendid

six roller stop cylinder press, a roller-drum press, and a perfecting press for illustrated cut work, all made and exhibited by Messrs. Cottrell & Babcock, of New York. These presses attract great attention, and are pronounced by competent judges the best of their kind in the world. The perfect distribution of the ink, the registering apparatus, which does its work with a mathematical exactness, and the uniformity and beauty of its impressions, constitute it the most perfect printing machine for fine book work ever made. The publishers of this book have long used it in the printing of their finest illustrated works, and have found it superior to any press they have ever used. The drum cylinder press is provided with Charles Eneu Johnson's automatic paper feeding machine, which dispenses with the services of a feeder for the press.

We are now at the end of the American department, and pass into the north avenue to complete our examination of the printing machinery. We notice two large presses at the eastern end of that avenue made by the Bullock Printing Press Company. They are in daily operation, and every afternoon a number of copies of the New York *Herald* and *Sun* are struck off from stereotype plates sent over from New York in the morning. The papers are distributed among the visitors. These presses have a capacity of 20,000 impressions per hour.

Paper cutting machines stand on the north side of the avenue, and in this department are book binders' machinery, presses for steel and copper plate and lithographic printing, and machinery for stereotyping and electrotyping and for type founding.

On the north side of the aisle Messrs. R. Hoe & Co., of New York, show several of their improved presses, one of which is engaged in printing the fine illustrations contained in "Picturesque America," thus giving a practical demonstration of its excellence; and at the western end of their space is the venerable hand press at which Benjamin Franklin worked as a journeyman printer during his first visit to London.

On the south side of the avenue opposite these presses is a fine ice yacht, a peculiarly American institution, and above it an American double life-boat with its equipments, beyond which

is a collection of boats and shells, and a half-size model of the famous Monitor life raft, which, it will be remembered, made a successful voyage across the Atlantic a few years ago, and has since been adopted by the navy of the United States. Beyond this is a full-sized steam yacht exhibited by Baird & Huston, of Philadelphia, showing an improvement in the arrangement of the propeller. On the opposite side of the avenue, the New York Safety Engine Company exhibit a fine upright engine.

At the head of the north avenue, and along the transept, John Roach & Sons, the famous shipbuilders of New York and Chester, Pennsylvania, exhibit a handsome collection of models of the noted iron steamships they have built for the Pacific Mail Company and other shippers, and models of the ironclads Puritan and Miantonomoh built by them for the United States. They exhibit also a sample of armor plating, and other work for iron vessels.

Passing along the transept into the central aisle, we notice a number of models of vessels, life-saving apparatus, rafts, etc., and turning into the central aisle pause to notice the glass cutters and engravers at work at the head of the aisle, ornamenting glassware by engraving designs upon it by means of small grindstones worked by the foot.

To the eastward of this stand we enter a region of machinery of various kinds for weaving cotton, woollen and silk cloths. On the left hand side of the aisle the Phoenix Manufacturing Company, of Paterson, New Jersey, have a Jacquard loom at work weaving Centennial badges in silk, with the arms of the United States and a portrait of Washington woven on the face. These are beautiful pieces of work, and large numbers of them are purchased by visitors as souvenirs of the Exhibition.

Opposite the loom A. F. Prentice & Co., of Worcester, Massachusetts, exhibit a fine collection of machinists' tools, with a number of presses, dies, and other machines for working in metal. On the left hand side of the aisle, the Danforth Machine Company, of Paterson, New Jersey, exhibit three fine machines for spinning silk thread. All the stages of the manufacture of

this article, from the raw silk to the complete thread, are shown here.

Below this W. E. & E. D. Lockwood, of Philadelphia, make an interesting exhibit of a self-feeding machine for the manufacture of paper envelopes. The machine is almost entirely automatic, and cuts, folds, gums and counts 120 envelopes per minute. By the side of this machine is another for printing envelopes, which prints 60,000 per day. A third machine is engaged in making paper collars.

On the next space below, the process of making paper boxes by machinery is shown, and farther on is a brick-making machine which works the clay, moulds the bricks and turns them out ready for baking. The machine takes the clay direct from the bank, tempers it in water, moulds it into bricks of uniform size with sharp angles and smooth surfaces, the bricks being stiff enough to wheel and stack in the sheds immediately without sun-drying. The largest size of this machine is capable of producing from 25,000 to 40,000 full-sized bricks in ten hours. The machine is exhibited by Chambers, Bro. & Co., of Philadelphia, and always draws a crowd about it to witness its operations.

At the end of the aisle, William Sellers & Co., of Philadelphia, make an extensive exhibit of powerful machinery for certain lines of work. They have a complete machine shop, which could at any moment be started upon the most difficult and the heaviest work. Among the articles included in their collection is the largest machine tool in the hall. It is a planing machine of eighty-one tons weight, having a bed weighing fifteen tons and a traverse of forty-four feet.

In the next space Pratt & Whitney, of Hartford, Connecticut, exhibit a number of machinists' tools, somewhat similar to, but of a smaller class than, those of Sellers & Co. Some of these tools are remarkable adaptations to certain classes of work, and exhibit the highest skill in their designs and construction.

We are now at the end of the American department, and pass over to the south avenue, and work our way westward along it. On the right is the machine shop of Sellers & Co., and on the

left an extensive exhibit of valves and steam pipe connections, steam fittings of various kinds, and nuts, bolts and screws.

Immediately on the west of the Sellers machinery, the Midvale Steel Works, of (Nictown) Philadelphia, make a splendid display of specimens of steel, including large axles and shafts of finely forged metal, and twisted and cold chilled bars. An axle is shown which was tested at the United States navy yard at Washington, D. C., and which required a strain of 122,300 pounds to the square inch to snap it.

Diagonally opposite, on the south side of the avenue, the Pittsburgh foundry shows some fine rollers of chilled iron for rolling brass, with a broken section of a roller, showing the depth of crystallization.

Above this, on the south side of the avenue, is a tall Tuscan column, built of thirty-eight different kinds of grindstones used in the mechanic arts, surmounted by a bronze eagle. It is the exhibit of J. E. Mitchell, of Philadelphia.

Diagonally opposite a wood-turner is at work with a lathe, turning out handsome ornamental wooden boxes, and in the next space on the west, Hoopes & Townsend, of Philadelphia, have a handsome and unique pavilion ornamented with a large display of bolts, screws, and nuts. On the opposite side of the aisle is another stand with glassblowers at work making fancy articles for sale, and next above this a soda fountain. Opposite the soda fountain is a striking display of files of various kinds and sizes in a handsome show-case, and immediately opposite this exhibit is one of Otis & Co.'s finest elevators with the lifting machinery.

Having reached the transept again we turn into the south aisle, and notice on the right, within a few feet of the transept, a corkmaking machine at work, cutting out corks of various sizes from the bark. Here is a section of the bark of a cork tree, said to be the largest in the world.

On the opposite side of the aisle Steinway & Sons, of New York, show metal frames for pianos, the mechanism of that instrument, and specimens of the machinery used in its manufacture.

Both sides of the aisle are now taken up with a collection of machinery of various kinds. On the north side of the aisle the Pennsylvania Tack Works, of Norristown, have six of their machines at work cutting tacks out of thin strips of metal. The machines used are "Weaver's patent," which make 400 tacks per minute, and over 2500 different kinds and sizes. In the next space below, the Duncannon Iron Company of Philadelphia show the process of making nails by a machine operated by a nail cutter. Immediately back of this is an automatic nail cutter, which does not require the services of a man to turn the metal plate as in the ordinary machine. The remainder of the aisle is taken up with machinery for charging soda fountains.

Having now finished our inspection of the American department in the main hall, we go back to the Corliss engine, and examine

The Hydraulic Annex,

which is a prolongation of the south transept, as we have stated elsewhere.

Immediately south of the Corliss engine is a collection of brass and nickel plate stop-cocks, and another of machinists' vises and tools. On the west side of the main aisle of the annex is an exhibit of files in a handsome case. The principal object of this collection is a large file-blade of polished steel suspended in the case. It is ornamented with a series of fine etchings, representing the workshops of Alexander Krumbhaar, of Philadelphia, by whom the exhibit is made. On the other side of the file is etched a fine view of Philadelphia. The etchings are by C. F. Pluemacher.

On the right hand of the aisle, just beyond the files, the Silsby Manufacturing Company, of Seneca Falls, New York, display several handsome steam fire-engines, and horse and hand hose-carriages, and close by the same company have one of their famous rotary steam-pumps.

The central portion of the annex is occupied by a sunken tank, 106 feet long by 60 feet wide, which is filled with water to a depth of about ten feet. At the south end of this tank is a

smaller tank raised about forty feet from the floor of the hall, from which a steady sheet of water pours in a cascade down into the pool below. The water is raised by two rotary pumps, driven by a steam-engine of 150 horse-power, which raise 30,000 gallons of water per minute to the upper tank. The pumps and engine were made by Robert Wetherill & Co., of Chester, Pennsylvania. The fall has a weir depth of about four inches and a width of thirty-six feet. The effect is very fine, and the cascade forms one of the principal attractions of the hall.

The pumps and hydraulic machines are grouped around the lower tank, and discharge steady streams of water into it. Here are hydraulic rams, presses, steam and hand pumps, pumps for mines, sugar refineries, and other special uses, turbine water-wheels and blowing machines and ventilating apparatus. Great Britain and several foreign nations participate in the exhibit, their machines being located on the east side of the annex.

With the Hydraulic Annex, we conclude our inspection of the American department, and turn our attention next to the exhibits of the foreign nations.

Great Britain and Ireland.

The space assigned to Great Britain and Ireland covers about one-third of the area occupied by the foreign exhibits. Banners of red with letters of white suspended from the roof mark the British section. We begin our tour through it in the southern aisle, at its eastern end, just above the German section.

On the south side of the aisle are two of the famous traction engines made by Aveling & Porter, of Rochester, England. They attract much attention, and have no superiors in the world. Across the aisle Messrs. Howard & Bullough exhibit some fine cotton machinery, including a large carding machine. In the next space is a display of submarine armor and diving apparatus, made by Siebe & Gorman, of London.

We cross now to the south avenue, on the south side of which several steam-hammers are displayed by B. & S. Massey, of Manchester. This firm exhibit also steam-stamps, and circular-saws

for cutting hot iron and steel. A section of nine-inch iron armor-plate is also exhibited, in which are several deeply-indented shot holes, which show the severity of the test to which it was subjected. On the opposite side of the avenue is another section of iron plate, $21\frac{5}{8}$ inches in thickness, which is polished on one face. The outer edge shows the manner of building up plate upon plate to gain the required thickness. Armor of this kind is doubtless designed for land batteries and forts rather than for vessels. We have no rolling-mill plants in this country capable of making such heavy plating, and this is therefore without a rival.

On the south side of the avenue we pass a group of machinery for weaving cotton cloths, and come upon two immense steam-cranes made by Appleby Brothers, London. These have done good service since their arrival at the hall, their exhibitor having generously allowed them to be used in lifting and placing heavy articles in position.

Opposite the cranes, Thomas Gadd, of Manchester, has a fine machine for printing calicoes, which prints eight colors at once, and an engine for running it; and below this, Clarke, Stanfield & Co., of London, show a pretty model of a floating dry-dock, with a steamship drawn up on one, to illustrate its workings.

We are at the eastern end of the British section once more, and pass northward into the central aisle, and turn westward again. On the north side of the aisle Messrs. Newton & Wilson, of London, make a large display of their sewing machines, many of which are operated by the hand instead of the foot, a style very popular in England. The machines are handsome, and are displayed in an attractive manner. On the opposite side of the aisle, a Jacquard loom is weaving badges of silk, and above the loom is another exhibit of sewing machines, these being the "Kimball & Morton machine." They are made in Glasgow, and are famous in the united kingdom as the machine that broke up the combination monopoly, and compelled the trade to lower the price of sewing machines. Immediately on the west of these machines, the well-known cotton-spinners, J. & P. Coats, of Paisley, Scotland, have machines at work winding and spooling cotton thread, which finds a ready sale to visitors to the hall.

At the west end of the British section in this aisle we notice a large table on which Messrs. Brierly Sons & Reynolds, of London, have a beautiful model of a railway junction, by means of which they illustrate the English system of managing railway switches and signalling the movements of trains. A similar exhibit is made immediately north of this one by Messrs. Saxby & Farmer, of London, who also show photographs and drawings of the workings of the switch system of the great depots of London. These two exhibits are among the most interesting objects in Machinery Hall. They show the practical workings of the "block system" of running trains, which has been adopted by a number of our leading railroad lines, and embody some valuable features which our roads generally might adopt with advantage to the public.

Adjoining Saxby & Farmer's model, the Inman Steamship Company exhibit a full-rigged model of their fine steamer, the *City of Berlin*. To the east of the railway model, Mr. John Walter, of the *London Times*, exhibits the printing press which bears his name. It is a fine machine and a worthy rival of the great American presses. It prints a daily edition of the *New York Times*, and attracts much attention from visitors.

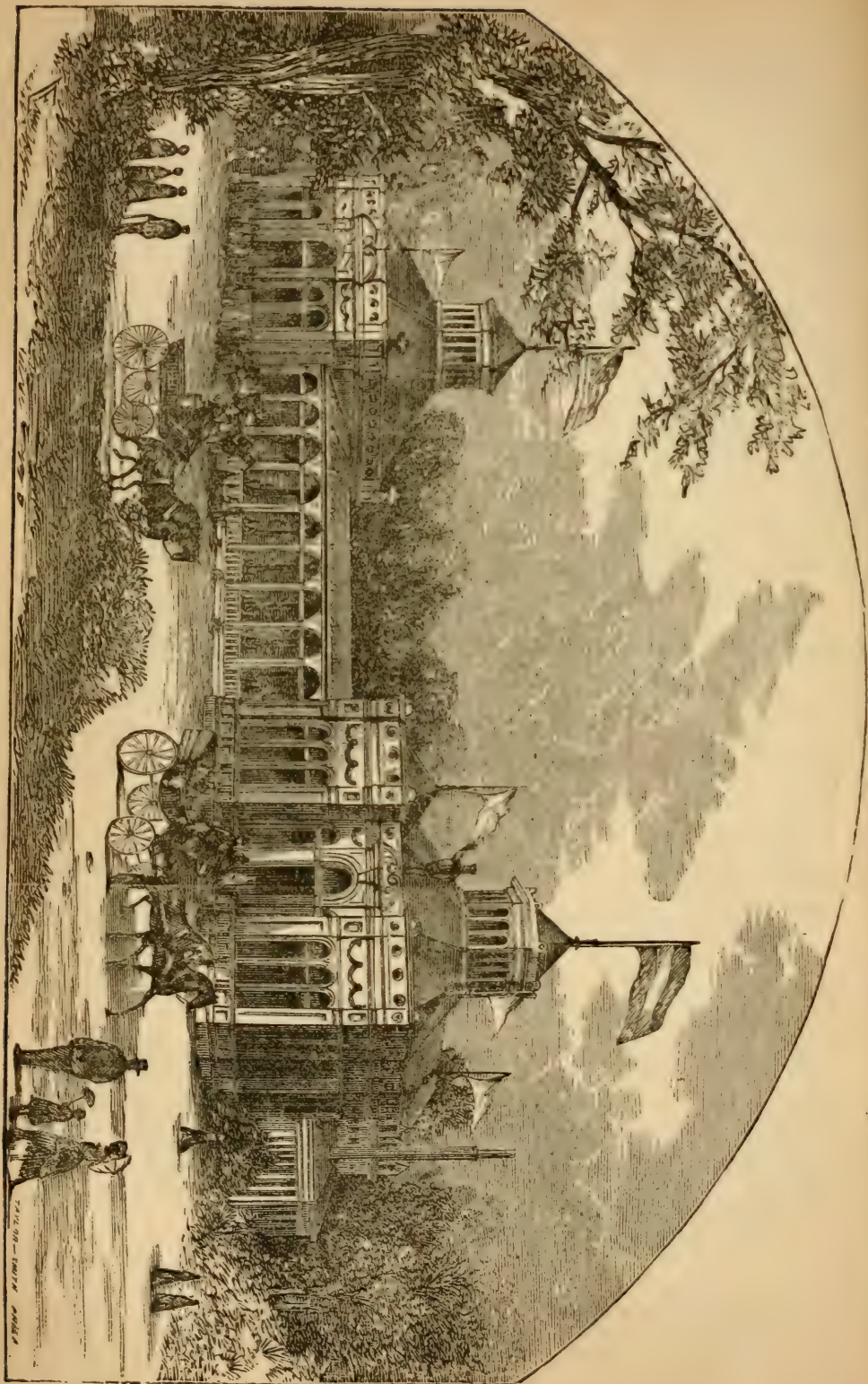
On the east of the Walter press, Messrs. Mirlees, Tait & Watson, of Glasgow, make an extensive display of machinery in motion, consisting of a sugar mill, and a valveless engine working an air-pump for a vacuum-pan, and driving centrifugal machines. This is one of the largest exhibits in the hall, and the machinery is all of the largest class.

Though the English display of machinery does not fairly represent the capacity of Great Britain for dealing successfully with the heaviest as well as the most delicate branches of the mechanic arts, it is still deeply interesting, and is in many particulars unequalled by anything in the hall.

Canada.

Canada, New Brunswick and Nova Scotia make a collective exhibit under one general title, as above. They have planing and moulding machines, two kinds of turbine wheels, horizontal

THE GERMAN RESTAURANT.



and radial boring mills, from Dundas, stationary, vertical, horizontal, and portable steam-engines, and seamless lead trap machines from Montreal; car-wheels, soda-water apparatus, and marbles, from Toronto; and railway signals from Belleville, in Canada. Nova Scotia sends quartz-crushers from Halifax; and New Brunswick, vertical steam-engines and circular-saws from St. John's. Lathes, drills, brick-making machinery, a steam fire-engine, sewing machines, from Canada, canoes, and boats of various kinds, make up the remainder of the exhibit, which is very interesting, and fully sustains the views we have expressed with reference to the enterprise and skilfulness of our northern neighbors, in our account of the Canadian display in the Main Building.

The Canadian section is at the eastern end of Machinery Hall, and in the centre of the building.

Germany.

The German section occupies the southeast corner of Machinery Hall, and is about one-half as large as that assigned to Great Britain. The German display is neither very large nor very varied, and does not give the visitor a fair idea of the resources of Germany, or the progress made by her in mechanics.

Upon entering the southeastern doors of Machinery Hall, the visitor's attention is at once drawn to two immense breech-loading siege guns that are mounted on carriages of a peculiar construction. These are the famous 1200-pounder breech-loading Krupp guns, from the foundry of that maker, at Eisen. These guns have been adopted by the German government for the fortifications of the empire and for siege purposes. They were well tested during the Franco-German war a few years ago in the sieges of Strasburgh, Metz, and Paris, and are considered among the most formidable and effective weapons in the world. A number of smaller rifled steel-guns of the same maker, for field uses, are grouped about the base of the monsters which frown down from their lofty position upon the peaceful assemblage about them.

On the north of the Krupp guns is a tall column of exhibits from the iron mine from which the metal for these guns is drawn. The base of the column is of crude iron ore, and the shaft of the smelted ore. It is a conspicuous object in this part of the hall. To the north of it is a fine collection of copper and iron wire piled in pyramidal form.

On the south side of the space occupied by the Krupp guns a large machine is at work making full-sized bricks of a fine quality. It is exhibited by C. Schlickeysen, of Berlin.

Prussia makes a fine exhibit of sulphur and copper ores, and on the south of this are a number of railroad car-wheels, a railroad switch, and machinery for railroad cars. Along the south aisle several gas-engines of a peculiar construction are in operation, showing how a steady motive power is derived from the explosive force of ordinary burning gas. They are exhibited by the Gas Motor Factory, of Deutz. At the eastern end of the German section a collection of steam gauges from Hamburg and Magdeburg is shown. The German sewing machine manufacturers make a collective display, and Aix la Chapelle shows her needles in handsome style. There are printing presses from Leipzig, steam-engines from Bremerhaven, and machinery of various kinds from Hamburg and Berlin in the remainder of the collection.

France.

The French section occupies the northeastern corner of Machinery Hall, and is equal in size to that of Germany.

At the eastern end of the north avenue of the building, A. Guinet & Co., of Lyons, have a loom, for the illustration of the process of weaving silk; and beyond the loom E. Secretan, of Paris, has an exceptionally elaborate pavilion, constructed of brass and copper, in which he exhibits specimens of his work in those metals. To the north of this pavilion, the French chocolate and bon-bon makers are at work, making and selling their finest confections; and the same firm, Beyer Brothers, of Paris, have a set of machines turning out their fine soaps, which find a ready market.

On the north side of the aisle, near the east door, F. Arbey,

of Paris, exhibits a collection of wood-working machinery, and to the west of this Morane, of Paris, exhibits some admirable machinery for making stearine candles.

In the north aisle, near the western end of the French section, P. Alauzet & Co., of Paris, have a series of lithographic printing machines. One of these is a railway printing machine, the bed of which is carried on wheels, which run on tracks. Around the sides of their space are displayed specimens of their lithographic printing.

The remainder of the French exhibit consists of a variety of machines. A fine apparatus for making beet-root sugar is shown by Beyer Brothers, of Paris. A Charleville house exhibits portable forges; Sascole, of Paris, has an interesting machine for making illuminating gas; D. Segat, of Paris, exhibits a machine for sewing straw hats; E. Cornely, of Paris, a machine for embroidering; E. Carré, also of Paris, a machine for making ice; and Leon Edoux, of Paris, a special system for mountain railways. The machines of the French exhibit are made with a neatness and display a completeness of workmanship that challenge the admiration of all who examine them.

Belgium.

The Belgian exhibit is small, but very complete, and occupies a space about one-third as large as that of Great Britain. It is situated on the north side of the hall, immediately west of the French section.

One of the largest single machines in the hall is a Belgian well-borer, exhibited by Joseph Chaudron, of Brussels. It is an enormous leg of iron, with a foot having a row of chisels on the side, used to stamp holes into the ground. "It weighs 20,000 pounds, and, being rotated six inches after each stroke, makes a circular hole ten feet across. Claws and valved buckets lift up stones and mud respectively, for the creature delights in water; and when a hole is made a certain depth another still larger shaft, with a foot fifteen inches long, and weighing 30,000 pounds and having chisels to match, is

stamped up and down to enlarge the hole, which is then cased with cast-iron pipe."

Louvain sends a fine exhibit of railway car-wheels and axles; Mariemont, railway stock of various kinds; Verviers, wool-cleaning and carding machines and looms; and Brussels, embroidering and sewing machines. Auguste De Tomboy, of Marcinelle, near Charleroi, exhibits the model of a trip-hammer and one of steam shears, and close by is a collection of machinery for making bolts. Emile Van Flaecht, of Haeren, near Brussels, shows some beautiful models of fat-rendering works, with samples of stearine and oleine.

One of the finest of the Belgian exhibits is that of P. Van der Kerchove, of Ghent, and consists of a beautiful horizontal Corliss engine, built for the Belgian mint, at Brussels, and a smaller one with Rider valves.

Verviers sends beautiful machines for working in wool; and Celestine Martin, of the same city, has a ring and traveller spinner. Brussels, Namur and La Louviere send multitubular filters, rotary pumps and punching machines.

From the above description it will be seen that but a few of the great Belgian manufacturers take part in the display in Machinery Hall, a circumstance much to be regretted, as there is no country in Europe which could offer such a varied, interesting and valuable mechanical exhibition as the "Republican kingdom."

Sweden.

The Swedish space is less than a third as large as that of Belgium, and lies along the north side of the north aisle, immediately opposite the Belgian space. The tall stoves of the country form conspicuous portions of the exhibit. The machines for working in wood and metal are among the very best in the hall, and there are quite a number of them. Norway has some fine machinery for the same purpose, her collection being shown with that of Sweden. There are several trip-hammers in this section, and machines for making bricks of peat; also two stationary horizontal, and one vertical steam-engine. Sewing machines, a fire-engine, railway axles and

springs, and fire-escaping apparatus are exhibited. A small narrow gauge locomotive, called the "Nyhammer," stands at the western end of the Swedish space, and is a singular-looking machine.

Russia.

Russia does not make much of a display in Machinery Hall. She has two sections, one of which is situated on the north side of the north aisle, on the west of the Swedish space, where she displays some fine brass mortars and naval guns; and another between the central aisle and northern avenue, and between the American and British sections, in which some interesting machinery is shown.

Brazil.

The Brazilian section lies between the north avenue and north aisle, to the west of the Belgian space. It contains one of the most complete displays made by any of the foreign nations in this hall. One of the most conspicuous objects of the collection is a stationary engine of very peculiar construction, which can be constructed for either high pressure or low pressure, and is said to be very simple and easy to keep in order. There are also several models of marine engines.

"There are three models of men-of-war, representing different styles. One of these is to represent a ship carrying a square battery amidships, being almost as wide as the vessel itself, and pierced for four guns, one on each face. The second carries amidships a turret that is flat on the sides and circular on the ends, at one of which is the porthole for the single gun it carries. The third model is for a gunboat of ordinary construction. The models in elevation showing the lines of the vessels are some fourteen in number, and are representations of vessels of various sizes, from a large sloop-of-war to an ordinary sized gunboat. They are all well made and will bear inspection.

"The machine shop at the arsenal of Marinha, at Bahia, is here beautifully represented by a miniature model, in which are represented the engines and boilers and all the different pieces of machinery. There are three boilers and two engines,

and a complete line of shafting, with couplings, counter-shafting and hangers, all complete. Here we can see, all arranged in methodical order, planes, upright drills, boring machines and several lathes. Small as these latter are, and all are made to scale, they show every part as perfect as in the larger machines. Besides the engines and boilers and the shafting, there are twenty-one different machines represented, and also the rail tracks with the two turn-tables and two trucks. There are also two models of stone dry docks, being made to scale from those at Santa Cruz and the Imperial dry dock. These are also complete, and give a very good idea of those important government works. A very handsome model of a stone casemate, with gun and carriage, is also a very prominent piece in this section. It is very accurate and complete to the most minute details, every part of the carriage and the training tackle being shown, as well as the rifling in the guns.

"A pin-making machine is shown, completed, and a series of the different pieces are also shown, both complete and in section, so as to give a perfect idea of the entire construction. It is worked by hand, and makes the ordinary solid-headed pin, and is apparently very simple and effective in construction. It is not a large machine, being not over two feet in length and a foot in width, and so constructed as to be placed upon any table. A couple of the machines used in the Imperial mint are also shown, one of which is for stamping the coin.

"The army and navy of Brazil are represented by full suits of the uniforms of the several grades of the service, and also a large case full of the various small arms, rifles, carbines, swords and pistols. One of the latter is a silver and gold-plated revolver of very handsome make. A very handsome model of a brass field-piece, all limbered up with caisson and everything complete, is a fine piece of workmanship. There are here also three bronze mortars of the sizes used in the service. They are mounted on their carriages, or beds, all ready for service. One field-piece of bronze is mounted and in position. It is about the size of one of our twelve-pounders. There is a larger one dismounted, and also a specimen of a howitzer. These pieces are

very highly finished in every part. A couple of small camp-chests of leather, and also of ammunition-buckets of the same material, are shown.

“Quite a number of brass pumps are here on exhibit, as well as two or three stationary fire-engines. The specimens of brass cocks are some of them rather unique in shape to us, but they are all of fine workmanship. We find also some specimens of shafting hangers and pulleys, a gear wheel and propeller, and also some specimens of carpenter tools, the planes having a sort of horn in the rear of the handle. A case of coins shows the different kinds of money used in the empire, and gives the gold, silver and copper coins of the several denominations.”

A small space across the north aisle is devoted to a showing of the silk culture of Brazil, which is as yet in its infancy. The habits of the silk worm are exhibited in a most interesting manner, and a loom for spinning silk thread is in operation.

On the south side of Machinery Hall, and west of the Hydraulic Annex, are three substantially built structures, smaller than, but similar in outward appearance to, the principal edifice. These are the Annexes for the display of boilers and quartz-crushing machinery, which may be seen in operation here.



CHAPTER XIV.

AGRICULTURAL HALL.

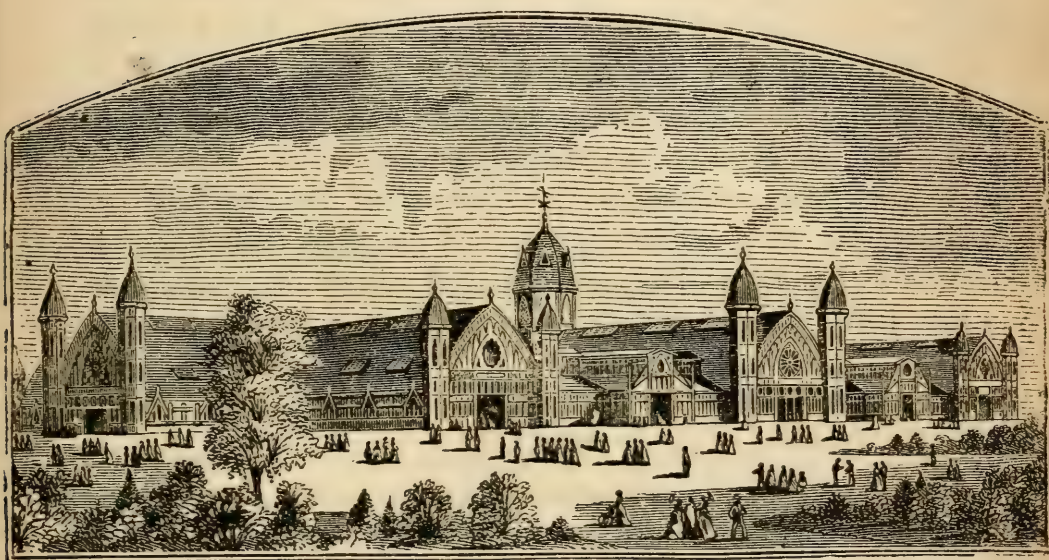
Description of the Building—Interior Arrangements—Classification of the Exhibit—The American Department—Agricultural Machinery—The Plows—Harvesting Machines—Threshing Machines—The Cider Mill—The Native Wines of America—The Starch Makers—The Windmill—The Natural History Collection—The California Buffet—The Aquaria—The Tobacco Exhibit—A Fine Display—Collective Exhibits of the Agricultural Products of the States of the Union—Daniel Webster's Plow—The Cape Ann Fisheries—"Old Abe"—The British Court—A Small Display—Agricultural Products of Canada—Canadian Machinery—The French Exhibit—A Fine Display of French Wines—Germany's Contribution—The Wines of the Rhine land—Agricultural Products of Austria and Hungary—Exhibit of Russian Products—Italian Wines and Oils—Bologna Sausages—The Spanish Court—A Complete Exhibit of the Products of Spain—The Portuguese Collection—Holland's Exhibit—The Norway Fisheries—Swedish Exhibit—The Japanese Court—The Tea and Silk Culture—The Brazilian Court—The Cotton Pavilion—A Remarkable Collection—The Brazilian Silk Culture—Exhibits of Venezuela and the Argentine Republic—The Liberian Court—The Pomological Annex—The Wagon Annex.

THE Agricultural Building stands on the third of the spurs or ridges which break the Exhibition enclosure, and is situated to the north of the Belmont valley, and on the eastern side of Belmont avenue. It is the third in size of the Exhibition buildings and is constructed principally of wood and glass. The exterior is painted a dark brown, and the roof is a dark green broken only by the skylights which are placed at numerous points in it.

The building consists of a nave 820 feet in length and 100 feet in width, extending from north to south. This nave is crossed by three transepts running east and west, each 540 feet long. The central transept is 100 feet in width, the side transepts 80 feet in width. At the point of intersection of the

nave and central transept a handsome cupola rises from the roof, surmounted by a weather vane. The nave and transepts are composed of Howe truss-arches of a Gothic form. The height of the nave and central transept from the floor to the point of the arch is 75 feet; the two end transepts are 70 feet in height to the point of the arch.

The four courts enclosed between the nave and the transepts, and the four spaces at the corners of the building, having the nave and end transepts for two of their sides, are roofed over and constitute integral portions of the hall as it stands. At



AGRICULTURAL HALL.

each end of the nave and of the transepts are placed handsome ornamental entrances, at each side of which rises a pointed turret. These turrets, the central cupola, and the pointed roofs give a picturesqueness to the building, which is, on the whole, a happy blending of architectural skill and taste with adaptability to the purpose for which it is designed. Seen from the spur on which the Horticultural Hall is located, the effect is very fine and imposing.

The interior of the hall is simply decorated, the roof, arches and columns being covered with a plain coating of whitewash, which color adds much to the air of spaciousness which is a

characteristic of the hall. The view is broken at intervals by the bases of the Howe truss-arches and slender columns of wood. Overhead is a bewildering network of trusses and beams.

The ground-plan of the building, including the courts and corner spaces, is a parallelogram of 820 by 540 feet, covering an area of about ten acres.

The hall is lighted with gas, reflectors for this purpose being suspended from the roof, and is supplied with water. Boilers situated in a frame building to the east of the hall supply steam for the engines which turn the agricultural machinery. Water-closets are located at the east and west ends of the building, and a complete fire-service is provided. The building, being of wood and more inflammable than the other great structures, an ingenious arrangement has been effected by which a fire can be at once smothered by the action of carbonic acid gas. The contract for the erection of the building was made on the 26th of July, 1875, and the work was begun in the following September, and finished about the middle of April, 1876. The cost of the building was \$260,000. The architect was James H. Windrim, of Philadelphia; the contractor, Philip Quigley, of Wilmington, Delaware; and the builders, Bell Brothers, of Philadelphia.

Stock-yards for the exhibition of horses, cattle, sheep, swine, poultry, etc., are provided in the vicinity of the Exhibition grounds.

The following is the classification of the exhibits made in this building by the Centennial Commission :

DEPARTMENT VI.—AGRICULTURE.

- 600—609....Arboriculture and Forest Products.
- 610—619....Pomology.
- 620—629....Agricultural Products.
- 630—639....Land Animals.
- 640—649....Marine Animals, Fish Culture, and Apparatus.
- 650—662....Animal and Vegetable Products.
- 665—669....Textile Substances of Vegetable or Animal Origin.
- 670—679....Machines, Implements, and Processes of Manufacture.
- 680—689....Agricultural Engineering and Administration.
- 690—699....Tillage and General Management.

The display collected within this hall is the largest and most complete ever attempted at any of the World's Fairs, and is by many considered the most striking and original feature of the whole Exhibition. Other International Expositions have made great displays of machinery, manufactures, and art collections, but none have ever given such an exhibition of the sources from which the world draws its food. To the visitor who has gone through the other great buildings, the Agricultural Hall is a delightful surprise, and he may walk for hours through it, finding something new and interesting at every turn.

The American department occupies about two-thirds of the entire space of the hall, and embraces an extensive and varied collection. We turn our attention to it at first.

The United States.

We enter the building at the north door of the nave, and turning to the left make our first inspection in the northeastern quarter of the hall, which is devoted exclusively to a display of agricultural machinery and farming implements.

Near the north door Messrs. Alexander Speer & Sons, of the Pittsburgh Plow Works, make a handsome display of their famous plows, each of which is brought to the highest stage of perfect workmanship and artistic finish. In the midst of this collection of splendid implements is a worn, faded-looking plow, the frame and share of which are wood, the latter being shod with sheet-iron. It was made sixty years ago, and was the result of a contest of skill between three manufacturers. It was made at a small shop in Pittsburgh, which has since grown into the well-known Pittsburgh Plow Works. The exhibit of the Messrs. Speers thus shows at a glance the great progress that has been made in this branch of our industry during the present century.

On the opposite side of the court Messrs. B. F. Ames & Sons show some handsome plows of an improved pattern, also some fine cultivators.

Passing the plows we enter the line of wheat-cleaning machinery, fans, etc., which brings us to the eastern end of the

building. Here is a handsome exhibit of spades, shovels, rakes, hoes, etc., made by George Griffiths & Sons, of Philadelphia, and Oliver Ames & Sons, of North Easton, Massachusetts. In the midst of the collection of Messrs. Griffiths & Sons is an old rusty and half-eaten spade, dug up by the late Rev. Dr. Brainerd from the line of the intrenchments of the American army at Valley Forge during the Revolution. This mute instrument, which did its humble part in the work of establishing the freedom of the republic, not inappropriately comes now to share in the crowning glory of the era which it helped to inaugurate, though the patriot hands which wielded it have long since mouldered to forgotten dust.

We turn into the court to the north of the first transept, and return towards the nave. We pass through a row of drills, horse-rakes and threshing machines, and notice Foust's fine machine for taking up hay and loading it on the wagon in the harvest field. It will take up a ton of hay and load it on the wagon in five minutes, and take it as clean as by the hand fork. It is exhibited by the makers, Messrs. Stratton & Cul-
lom, of Meadville, Pennsylvania.

In the midst of this collection the Oliver Chilled-Plow Company, of South Bend, Indiana, make a beautiful display of their plows. One of these is the handsomest in the building. The metal parts are nickel-plated, and the frame is of rosewood, beautifully carved with agricultural symbols.

We are now at the nave again, and turn into the northeast transept and follow it eastward. Here the Higganum Plow Company, of Connecticut, have a fine display of plows, in the midst of which is a venerable plow made in Connecticut in the year 1756. The contrast between this and the splendid plows exhibited by this company is even more striking than that referred to in our account of the exhibit of the Pittsburgh Plow Works.

About half way down the transept is a handsome soda fountain. On the north side of this fountain Messrs. Hurst & Bradley, of Chicago, exhibit a number of fine gang plows, and on the south side Messrs. Collins & Co., of New York and

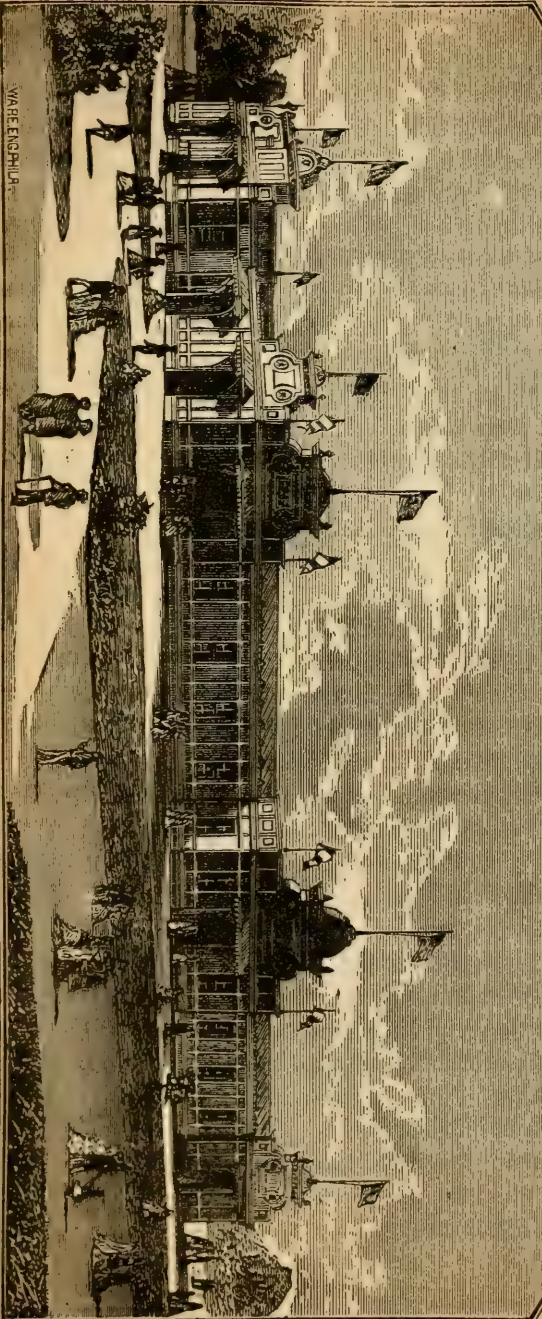
Hartford, Connecticut, make a similar display. These plows of these firms are in the best style of American workmanship, and are among the finest articles exhibited in the building.

On the south side of the transept we notice a collection of threshing machines and portable steam-engines for operating them. Opposite these the Wayne Agricultural Company, of Richmond, Indiana, exhibit the famous Planet Reaper.

A collection of butchers' and meat-packers' machinery occupies the eastern end of the transept, and passing through this we reach the eastern door, and turn off to the right into the court immediately south of the northeast transept.

A little way down, on the left, is a large space devoted to the display of the Buckeye Mower and Reaper and the Sweepstakes Thresher. These machines are among the best known in the Union, and those exhibited here are finished in elegant style. On the opposite side of the court the Halladay Standard Windmill makes a fine appearance; and in a space immediately back of this Westinghouse & Co., of Schenectady, New York, exhibit one of their splendid steam-threshers, which attracts much attention. Some distance farther on, on the right of the court, is a beautiful model of the Union Corn Planter, exhibited by Selby & Co., of Peoria, Illinois.

We are at the nave again, and turn off into the next court on the south and go eastward again. On the north side of the court is one of the most interesting machines in the Exhibition, namely, "Slosser's Self-Loading Excavator." Under the management of a single man, who is also the driver of the team, this machine digs up the ground, takes up a load of earth and deposits it at any desired place. It does its work with a rapidity that is astonishing, and has been used on some of the most important public works in the country. It is exhibited by Peter J. Stryker, of New Brunswick, New Jersey. A short distance farther on, on the same side of the court, the Johnston Harvester Company, of Brockport, New York, have a large space elegantly fitted up, in which they make a large and handsome display of reapers and mowers. One of these machines is so arranged that it can be used either as a mower or as a reaper.



WAREHOUSE

THE CARRIAGE BUILDING.

at the pleasure of the operator. A little farther on, on the south side of the court, the famous McCormick Reaping and Mowing Machines occupy a large space and make a handsome display. The merits of this, the pioneer reaper of America, are so well known that they need no description here. A most ingenious and valuable improvement to this machine is the automatic binder, by which bundles of grain are taken up from the cradle of the machine, bound, and distributed at regular distances. The remainder of the court, on both sides, is taken up with harvesting machines of various kinds, prominent among which is the Adams & French Harvester, which also has a binding and dropping attachment. By a carrier attached to the binder's stand, the bundles of grain are carried on the machine until enough of them are gathered to make a shock; then they are dumped together. This saves the labor of one man. The machine is exhibited by the Adams & French Harvester Company, of Cedar Falls, Iowa. In the same space the Sandwich Manufacturing Company, of Illinois, exhibit a number of the famous Adams Power Corn-Sheller, one of the largest of its kind in the Exhibition.

We are now at the east door, where a horizontal engine is at work supplying power to the line of shafting which turns the agricultural machinery in this quarter of the building. We pass by it and enter the next court on the south. This court, like the preceding one, is filled with harvesting machines of various kinds. In the midst of these a fine display of grain-drills of improved construction is made by the Farmers' Friend Manufacturing Company, of Dayton, Ohio. The Buckeye Agricultural Works, of Springfield, Ohio, also make a fine exhibit of this class of machines, and of cultivators and sulky plows.

Being at the nave again, we pass to the central transept and go east, noticing on the left the handsome exhibit of horse-rakes made by J. H. Thomas & Sons, of Springfield, Ohio. Passing through a collection of reapers and rakes, we come to a handsome pavilion of black velvet, ornamented with pitchforks, hoes, rakes, scythes, cutting-knives, etc., made by the Auburn Manu-

facturing Company, of Auburn, New York. It is one of the handsomest exhibits in the building, and the articles mentioned are displayed in a very original and tasteful manner.

Opposite this pavilion, on the north side of the transept, Whiteley, Fassler & Kelly, of Springfield, Ohio, exhibit a magnificent specimen of their Light Champion Mower and Reaper. The metal parts of the machine are nickel-plated, and the frame is of rosewood. It is the most beautiful piece of work of this kind in the hall, and of course attracts much attention.

Harvesting machinery occupies the transept to the eastern end, where the Rochester (New York) Agricultural Works show a large Hubbard Mower harnessed to two fine wooden horses. This is one of the notable displays of the hall, and deserves the praise it receives.

Immediately south of this machine the Walter A. Wood Mowing and Reaping Machine Company, of Hoosick Falls, New York, exhibit one of the handsomest and most satisfactory harvesting machines in the hall. Attached to it is Locke's Self-Binder. This binder is operated by the driver of the machine, and does its work with a wonderful exactness and rapidity. It can be easily detached and a binder's table substituted for it in case of accident to it. It is a genuine triumph of American ingenuity.

We are now at the east wall again, and pass into the court on the south of the central transept. At the eastern door of this court is a vertical engine for running the machines in the southeastern section of the building.

On the south side of this court, at its eastern end, Messrs. Boomer & Boschert, of Rochester, New York, have an immense cider-mill in operation. The apples are ground by a grating machine which has a capacity of five hundred bushels an hour. It is claimed for this press, which is the most powerful of its kind in the world, that it extracts more of the juice of the apples than any other. The whole process of cider-making is shown here. Beyond the cider-mill, on the south side of the court, is a display of portable steam-engines, and farm saws for steam or horse-power; and to the west of these is a collection of meat-

chopping machinery. On the opposite side of the court the Howe Manufacturing Company show a collection of scales suitable for farm uses. On the south side of the aisle, opposite the scales, is an exhibit of ice-cream freezers, churns and wooden ware; and fronting these, on the north side of the aisle, is a collection of lawn mowers of various patterns. These make up a pretty display, and bring us to the nave once more.

We turn into the next court on the south and go east again. On the north side of the court Robert Wood & Co., of Philadelphia, make a handsome exhibit of a model stable of three stalls, and a quantity of ornamental iron-work for farm and stable use. Above the stable is a collection of machinery for making ice-cream by steam-power, churns, butter tubs and other wooden ware; and on the south side of the court, immediately opposite, is a display of threshing machines.

A farm saw-mill is shown by Harbert & Raymond, of Philadelphia, on the north side of the aisle; and above this P. K. Dedrick & Co., of Albany, New York, exhibit their improved press for baling hay, straw, broom-corn, hemp, cotton, wool and hair. It may be operated by either hand, horse, or steam-power.

At the eastern end of the court is a fine iron stable, with a patent flooring, exhibited by James L. Jackson, of New York. It is complete in every detail, and has stalls for four horses. Immediately opposite, on the south side of the court, is a collection of the largest and finest power threshing machines and horse-powers in the hall. They are exhibited by J. I. Case, of Racine, Wisconsin, and the Pitts Agricultural Works, of Buffalo, New York.

Having reached the east wall again, we pass into the next court on the south. On the south side of this court are the Canadian and Liberian exhibits, the north side of the court being the limit of the American department in this quarter of the building. It is an unbroken line of threshing machines for steam and horse-power, and of portable engines. Passing by these, we find ourselves in the nave once more.

We turn northward now and pass up the nave towards the

north door. For a while our inspection is confined to the east side, as the opposite side is taken up with several foreign departments. We enter at once upon the exhibit of the native wines of the United States. These are handsomely displayed in bottles, each wine-grower having his own booth, or stall, some of which are finely fitted up. Here are the wines of California, Ohio, Missouri and central New York, consisting of champagne, still and sparkling wines, port and claret. The excellence of these wines is generally admitted, and they are rapidly acquiring a footing equal to the best foreign wines. The making of wine is yet in its infancy in this country, but from what has been already achieved there seems to be little doubt that it will before many years rank among our most important and extensive industries. The exhibit here is most encouraging.

At the intersection of the nave and the central transept stands a handsome bronze fountain, which throws its waters almost to the roof. The design is attractive, and the fountain very much superior to the large one in the Main Exhibition Building.

On the east side of the nave, opposite the fountain, the Weikel & Smith Company, of Philadelphia, show a complete model of their extensive works, in Front street, Philadelphia, and a collection of mustards, spices, blacking, etc., manufactured by them. This is one of the handsomest exhibits in the hall, and is much admired.

North of the fountain the American department extends along both sides of the nave. The western side is occupied by the exhibits of the starch-makers. The Glen Cove Company have a beautiful Moorish pavilion with an imitation stained glass roof and tile-work at the base, one of the handsomest structures in the building, in which are displayed in a most attractive manner specimens of their starch, and illustrations of the process of manufacture. Above this, Andrew Erkenbrecher, of Cincinnati, has a tall and handsome case of black walnut and plate-glass. He exhibits samples of his perfumed starch, the only preparation of the kind in the world. A fine display is made by T. Kingsford & Son, manufacturers of the famous Oswego (New York) starch. Both the Glen Cove and Oswego

Companies exhibit starch for the laundry and corn-starch for table use.

Above the starch-makers is a display of extracts of hops and malt, and a line of canned goods, all tastefully shown. On the opposite side of the nave is an exhibit of cologne spirits and whiskeys, in glass and wood.

A handsome soda fountain stands in the middle of the nave at this point. On the west, or left-hand side of it, the American Condensed Milk Company make a tasteful exhibit. Adjoining this C. J. Fell & Brother, of Philadelphia, make a fine exhibit of spices, gelatine and self-raising flour. The show-cases of this firm are of black walnut and plate-glass, and are among the richest in the hall. On the opposite side of the nave is the stand of the Rumford Chemical Works, of Providence, Rhode Island, where the baking powders of the company are displayed, and hot biscuit prepared with them are daily baked and dispensed to the visitors.

Diagonally opposite, on the west side of the nave, the Portland (Maine) Packing Company exhibit an extensive assortment of their famous canned meats, fish, shell-fish, fowls and soups. This is one of the largest establishments in the Union, and conducts twenty factories in New England and the British provinces. It turns out about two and a half million cans annually, and its goods are well known in all parts of the world.

In the next space above, Atmore & Son, of Philadelphia, have a handsomely fitted-up stand, with velvet cushioned seats, in which they display their mince meats and English plum pudding. The stand is surmounted by a large stuffed cow.

On the opposite side of the nave the bakers make one of the handsomest exhibits in the hall. Their crackers, cakes, bread, biscuit and other products are displayed in ornamental cases, and are often arranged in tasteful and sometimes artistic designs.

A large windmill stands in the nave at this point. It is built in the old style, is about thirty feet in height and its sails reach nearly to the roof of the hall. It bears the date 1776, and is complete in all its arrangements. If a sufficient force of

wind could be obtained in the hall, it could be put to work at any moment. It is exhibited by George V. Hecker & Co., of New York, who display here and on the west side of the nave, immediately opposite the mill, samples of their self-raising flour, buckwheat, farina and cracked wheat.

Along the eastern side of the nave is a large exhibit of stuffed animals and birds. Some of these are American, others are natives of foreign countries. The principal display is made by Professor Henry A. Ward, of Rochester University, one of the best known and most skilful scientists in the Union. He has here a large Bactrian camel, a giraffe thirteen feet high, and a number of casts of celebrated fossils. The collection is the best of its kind in the Exhibition, and is deeply interesting to the masses as well as to the student of natural history.

North of the windmill, on the east side of the nave, the confectioners make a handsome display of their wares. The principal exhibits are by Stephen F. Whitman & Son, of Philadelphia, and Henry Maillard, of New York. Schare & Co., of New York, make a unique display of a tall pyramid of candy, with figures of the same material, illustrating the signing of the Declaration of Independence and the principal events of our history. North of Whitman's cases Walter Baker & Co., of Dorchester, Massachusetts, make a tasteful and attractive display of their chocolates and cocoa and broma preparations. On the opposite side of the nave the macaroni and oatmeal makers exhibit their goods.

We are now at the north door, and, turning to the left, enter the northwest section of the building. Here is a handsome little room, enclosed with a tasteful wooden screen in white and gilt, known as the California Restaurant, where an opportunity can be had of becoming acquainted with one of the best varieties of California wine, the sale of which is the specialty of this establishment.

We pass along the first court on the north, pausing to notice the handsome display of the mustard and spice grinders. Farther on Smith, Earle & Co., of New York, and George A. Alden & Co., of Boston, have a large space in which they

exhibit crude India rubber and elastic gums, with specimens of the trees from which they are obtained. An exhibit of fertilizers occupies the opposite or north side of the court, extending to the western end of the building.

Along the western wall is a row of aquaria containing the food fishes of our rivers, lakes and the sea. It is deserving of careful study. Sea water is brought daily from the ocean for the marine fishes.

We pass to the next court on the south. The Norwegian fishery exhibit occupies the south side of this court for a short distance, and beyond it, on the same side, is a display of bird cages. Fertilizers occupy the northern side for a considerable space, and are followed by samples of the native woods of the United States, among which is a collection of forty-eight specimens of different kinds of wood found growing in a space of an acre and a half in New Jersey, not far from Philadelphia.

We now enter the section devoted to the tobacco exhibit. It is very large, and occupies a considerable portion of this section of the hall, extending over to and beyond the northwest transept. The various manufacturers have exerted all their ingenuity to render this section as attractive as possible. It is entirely unique, and many of the exhibits are displayed with originality as well as taste. The collection embraces the virgin leaf, manufactured tobacco of every kind for chewing and smoking, and snuff. We notice especially the fine display of plug tobacco and twists made by L. Lottier, of Richmond, Virginia; and not far from this the handsome pavilion in which George W. Gail & Ax, of Baltimore, exhibit their famous fine-cut tobaccos and snuffs. C. A. Jackson & Co., of Petersburg, exhibit a pavilion built of plug tobacco, close by. On the north side of the northwest transept E. Holbrook, of Louisville, makes an exceptionally fine display of manufactured tobaccos, the virgin leaf and the growing plants. Immediately opposite, Frishmuth & Brother, of Philadelphia, have a handsomely fitted-up space filled with manufactured tobacco. Adjoining this space is the exhibit of P. H. Mayo &

Brother, of Richmond, Virginia, in which the various stages of the process of manufacturing chewing tobacco are shown. This space is adorned with festoons of tobacco twists. West of this is the handsome exhibit of P. Lorrillard & Co., of New York, consisting of their famous brands of fine-cut tobacco and snuffs. In the next space, on the west, is a lofty case of ebony



INTERIOR OF AGRICULTURAL HALL.

with gilt mountings, in which Krebbs & Spiess, of New York, show a collection of fine cigars.

Passing the tobacco exhibit, and continuing along the court, we enter the exhibit of flour, which is well arranged and attractive. It occupies the remainder of the court to the nave.

We enter the northwest transept from the nave. The east-

ern part of it is occupied on both sides by a display of pickles, preserves and canned goods of various kinds. From these we pass through the tobacco exhibit again, and beyond it, on the north side of the transept, notice a decayed tree covered with Southern moss. This is the natural state of the growing moss, which is here exhibited by the Delta Moss Company, of New Orleans, who also show several bales of the cured moss, which is now being extensively used in the place of curled hair for upholstering purposes. The supply of this article in the swamps of the South is unlimited, and it is much cheaper and quite as elastic as hair.

At the west end of the transept is an apparatus for the artificial hatching of chickens, which attracts much attention from those interested in the raising of fowls.

From the western end of the transept we turn into the next court on the south. On the left hand side is the exhibit of horse shoes, with a model of the machine for making them, and opposite this is a large evaporator for drying fruits for market. By the side of this is an immense steam road-roller from the Pioneer Iron Works, of Brooklyn, New York.

On the right hand side of the court, beyond the steam roller, the State of Oregon makes a collective exhibit of her agricultural products. A large part of the display is made up of specimens of the native woods of the State, which are among the finest in the world. The grains and other products of the State are well shown, and a specialty is dried fruits, of which large quantities are produced in Oregon and shipped to all parts of the world. The most remarkable product in the exhibit is a specimen of dried cider. The water is evaporated from the cider, and the solid residue is then rolled around a wooden roller and is ready for transportation. It is dissolved in water when ready for use, and makes excellent cider. Bricks of solidified apple butter are also shown. Beyond Oregon, Wisconsin and Illinois make collective exhibits of their agricultural products, the chief feature of their displays being specimens of the splendid grains which they produce. Ears of corn are shown which are of astonishing size, and every kernel is as

perfect as the most ardent farmer could desire. Opposite these, on the left hand side of the court, Massachusetts shows her agricultural products and also specimens of her beneficial birds.

At its eastern end the court is occupied by the pickle and preserve makers and canned goods packers again, and in the midst of these a handsome display is made by the New York Condensed Milk Company and Borden Meat Preserving Company. This house was the first to engage in the process of condensing milk and other substances, and was founded by Gail Borden, the inventor of the process.

Passing into the next court, on the south, we notice a display of pickles, prepared mustards and sauces, on both sides. All the goods of this class exhibited in the hall are displayed in the most attractive manner, and constitute one of the prettiest features of the agricultural exhibit. On the north side of the court, a little way down, J. W. Norris & Co., of New York, exhibit a number of fine canvas-covered hams in a glass case.

The north side of the court below this is occupied by the collective exhibits of the States of Michigan, Indiana, Connecticut and New Hampshire, and the Territory of Washington. These are all displayed in a tasteful manner, each State occupying an enclosed court and laying especial weight upon the products in which it excels. The Western States exhibit wheat and corn that cannot be surpassed. New Hampshire shows her native woods, and some exceptionally fine samples of wool. She also exhibits two stuffed hogs of enormous size. One is seven feet four inches, and the other eight feet four inches, in length, from snout to tail. The former was killed when nineteen months old, and weighed 1253 pounds: the weight of the latter when he was killed, at the age of twenty-one months, was 1307 pounds. A large plow, thirteen feet long, is also exhibited by the New Hampshire State College of Agriculture. It was made by Daniel Webster, who delighted in large things, and it was one of his greatest delights to guide it. Four oxen were required to draw it.

On the south side of the court, opposite the Indiana display,

the Cotton Exchange, of New Orleans, exhibits a number of fine varieties of Southern cotton in the bale and by sample. Adjoining this is an exhibit of wool from New England.

At the west end of the north side of the court is the fishery exhibit of Massachusetts. In a large tank float a number of models of the fishing craft of 1776 and 1876. Projecting into the water is a fac-simile in miniature of the wharf of a century ago, and one of the wharf of to-day, with its extensive fish-house, with men and women engaged in preparing the fish for packing. Around the tank, on shelves and frames, are ranged the various apparatus used in fishing, oil-cloth clothing for the men, nets, etc. The whole exhibit is made with a skill and taste which reflect the highest credit upon the people of Cape Ann.

This brings us to the west wall of the building, and we pass into the next court on the south. At the head of this court, on the north side, is a large case containing a number of specimens of California silk-worms at work. They are fed with fresh mulberry leaves at stated times, and the manner in which they are shown affords an excellent opportunity of studying their habits. On the same side of the court the native woods of California are shown, also the native birds and a number of the agricultural products of that State. On the opposite side of the court the Central Pacific Railway exhibit a number of large photographs of scenery on their road.

On the north side of the court the States of New Jersey and Delaware exhibit their agricultural products, and on the opposite side similar exhibits are made by the States of Ohio and Nebraska. Beyond the Nebraska exhibit is the display of the seedsmen, whose cases extend across to the central transept and almost to the nave. The eastern end of the court is taken up with a large display of oakum and curled hair, opposite which, standing proudly on his lofty perch, surveying the scene around him with an air of royal majesty, is "Old Abe," the famous eagle of the Eighth Wisconsin Regiment of Infantry. This noble bird accompanied the regiment through its entire period of service in the civil war, was present in every battle in which

it was engaged, and was twice wounded. He is accompanied now by the sergeant who bore him at the head of the regiment during the war.

Between the court and the central transept the space along the nave is occupied by the collective exhibit of the pork-packers of Cincinnati.

We pass into the central transept, on the south side of which is the Spanish exhibit. On the north side D. Landreth & Sons, of Philadelphia, make an extensive and handsome display of their famous seeds for the garden and farm. Mr. B. Landreth, one of the partners in this well-known house, is the Chief of the Bureau of Agriculture. The zeal and skill with which he has conducted his department are shown in their highest light in the grand exhibition of the products of the world collected within the Agricultural Building.

The transept is here occupied by a confectionery stand, beyond which, on the north side of the transept, is Reuter's Restaurant, the principal eating-house in this hall.

Beyond the restaurant the State of Iowa makes a beautiful display of her agricultural products, a prominent feature of which is a large and complete collection of fruits under glass. Beyond this is an exhibit of the minerals of Nevada, and at the west end of the transept Iowa exhibits specimens of her soils in tall glass columns.

We are now at the end of the American department, and in turning our attention to the exhibits of foreign nations give the first place to the mother country.

Great Britain and Ireland.

The British section is in the southeast corner of the hall, and extends from the nave to the eastern wall, and from the southeast transept to the south wall. The display is small, and does not compare favorably with the splendid showing made by Great Britain in the Main Building. Scarcely any of the English agricultural machinery is to be found here, and the exhibit is far from doing justice to England as an agricultural country.

The post of honor, on the front line of the section, is given to the makers of pickles, potted meats, mustards and extracts. Crosse & Blackwell, the famous Chow-Chow makers, have a lofty case of black and gilt, semicircular in shape, at the intersection of the nave and transept, in which they show their goods, and immediately behind them Keen & Robinson, of London, have a handsome case of mustard. On the front line, immediately south of Crosse & Blackwell, T. & H. Smith, of Edinburgh, have a handsome display of extracts of various kinds. The most conspicuous portions of their exhibits are two fine white crystallized substances, looking exactly alike. One of these is *coffeeine*, or the active principle of the coffee bean; the other, *theine*, the active principle of tea. Adjoining this exhibit is a case of fine extracts by John Mackays, also of Edinburgh. To the south of the extracts is an exhibit of bee-hives and bee-furniture, by George Neighbor & Sons, of London, and in the adjoining space John L. Bowes & Brother, of Liverpool, exhibit samples of wool from all parts of the world. At the south end of the front line the Cork Distilleries Company, of Cork, Ireland, have a tasteful pavilion in which they show some superior Irish whiskeys in wood and glass.

Having finished the front line along the nave, we go back to the southeast transept and continue our examination along its south side. Adjoining Keen, Robinson & Co.'s exhibit Emile Menier, of London, makes a handsome display of fine chocolates and cocoas. Farther on, on the south side of the transept, John McCann, of Drogheda, Ireland, exhibits a fine article of Irish oatmeal, and shows the appearance of the meal at the different stages of grinding. To the right of the oatmeal is an exhibit of meat extracts, soups and potted meats. The Colonial Produce Company, of London, exhibit specimens of their patent tea, milk and sugar, and patent coffee, milk and sugar. These are reduced to a powder and wrapped in air-tight gelatine envelopes, which readily dissolve with the powder in hot water. A package will make three cups of tea and coffee. This is a capital preparation for travellers or for persons camping out for pleasure or from necessity.

An exhibit of ginger ales and aerated waters now follows, beyond which John Coope & Co., of Burton-on-Trent, display their well-known Burton ale. In the next space is one of Aveling & Porter's road steam-engines which we noticed in Machinery Hall. By the side of it is a large wagon for road locomotives. Farther on Barnard, Bishop & Barnard, of Norwich, exhibit a collection of ornamental iron work for farm and stable use.

From the east end of the transept we pass to the next court on the south. Half way down this is a portable engine for farm use, different in style from those used in this country and occupying less space. Below it the exhibit of ales is continued. On the south or opposite side of the court James Fussell & Sons, of Somersetshire, have a collection of reaping hooks and other edge tools used in agriculture.

Lower down are the confectioners, who show their goods in handsome cases, and to the south of them Lea & Perrin have a case of ebony and gilt, in which they exhibit their world-famed Worcestershire Sauce.

Passing to the most southern court of all we notice a handsome case of walnut, containing a large display of ales, Dublin stout and whiskey, by E. & J. Burke, of Dublin.

Farther eastward is an apparatus for suckling young calves, sheep and pigs. It is a wooden trough, which is filled with milk when ready for use. A number of tubes project from the side, each with a rubber nipple. Beyond this a potter, too late for a place in the Main Building, exhibits a collection of porcelain and plain whiteware. Then follow some ornamental work, ditching tiles, drains, etc., in terra cotta, and several French burr millstones for hulling rice and grinding flour.

Canada.

The Canadian section lies in the southwest quarter of the hall, opposite that of Great Britain, and extends from the nave back to the Liberian section.

The front line along the nave is taken up with an extensive display of the agricultural products of the Dominion, consisting

of the grains, beans, peas, roots and flour grown and made in Canada. Immediately back of these is an exhibit of Canadian wool. The quality is very fine, and the length of the wool is notable.

In the next line, going eastward, is a row of tall cases, in which are shown prepared specimens of the birds, animals and insects of Canada. The exhibit of insects is by the Entomological Society of London, Ontario; the birds and animals are exhibited by individuals from London, Toronto and Halifax. In the rear of these collections John Harvey & Co., of Hamilton, Canada, have a number of fine fleeces, showing a remarkable length and thickness of wool. Then follows an exhibit of vinegar in barrels, native fruits, macaroni, flour, salt, pickles, cheese, cured fish and canned goods of various kinds, which take up considerable space, and show the progress of the efforts of our Northern cousins in this direction.

A pyramidal stand, of considerable size, contains a display of the agricultural products of British Columbia. Some very fine wheat is included in this exhibit, and samples of this grain and oats on the stalk show the size and vigor which they attain in this high northern latitude. Specimens of the woods and barks of the country are also shown, and there are two blankets of variegated colors, woven by the Indians.

We now enter the department of agricultural machinery, in which over one hundred exhibitors take part. The collection is similar to that in the American department, and is particularly rich in reapers, mowers, plows, harrows, root and straw-cutters and horse-powers. The variety in plows is, if anything, greater than our own, but the number of plows is much smaller. The most conspicuous exhibits of plows are made by George Ross, of Chatham, Ontario, and T. Spardle, of Stratford, Ontario. The "Yeondle plow," exhibited by the latter, is the finest in the Canadian collection, and one of the very best in the hall. The Hamilton Agricultural Works show a fine specimen of the Iron-clad Adjustable Table and Platform Reaper, a worthy rival of the best American reapers. A machine which forms a conspicuous part of this exhibit is the turnip-drill,

which does not appear in our own collection. The Canadian climate is not suited to corn, and turnips and peas are raised in place of it. The collection includes also portable engines, cider-presses, potato-diggers, snow plows for breaking winter roads, grain-drills and hay-loaders. Some of the threshing machines exhibited here are among the largest and best in the hall, and are handsomely ornamented.

France.

The French section lies west of the nave and along the southwest transept. It extends on the south side of the transept from the nave to the Dutch court, and on the north side of the transept from the nave to the west wall. It adjoins the Brazilian section on the north and the German section on the south.

The most prominent feature of the French exhibit is the display of wines. Every grade of wine made within the limits of the French republic is shown here. We find champagnes in abundance, and the dainty and delicious wines of the south of France are well represented. Here are Burgundies, clarets, red and light wines, and brandies and liquors of every description.

The front line along the nave is occupied by a row of handsome show-cases, principally of ebony and gilt, in which are displayed champagnes, brandies, liquors and olive oils. On the south side of the transept Menier & Co., of Paris, have a handsome case of ebony and gilt, filled with a collection of fine chocolates. In the sides of the case are set photographs of the Menier establishment and the people employed in it. On the north side of the transept, Meunier, of Paris, has a beautiful case of carved ebony, ornamented with lithographs of his factory in 1785 and 1876, in which is a collection of fine chocolates. These firms are the principal chocolate-makers of France. The house of Meunier was founded in 1760, and is the oldest now in existence; and its rival, Menier, claims to do an annual trade in chocolates of 25,000,000 francs.

On the south side of the French court, near the nave, C. Du-

moutier, of Claville, makes an exhibit of the agricultural products of the department of the Eure.

Immediately back of the front line, the south side of the section is occupied for some distance by a triple row of handsome oak stalls, in which the great Paris seedsmen, Vilmorin & Andrieux, exhibit photographs of flowers, vegetables, and plants, and samples of seeds.

Passing this we reach the principal exhibit of wines, brandies, liquors, cordials in glass bottles and small stone jugs, which takes up the entire space south of the transept, back to the Dutch section.

On the north side of the transept is an extensive collection, by a number of exhibitors, of the famous *pâté de foi gras* of Strasburg, pickles, preserves, mustards, jellies and prepared food of various kinds. Preserved fish and sardines in oil form a prominent part of the collection, and candied fruits, dried fruits, and vegetables, and prepared soups are extensively displayed.

On the north side of the court D. Gazeubon, of Paris, exhibits a fine collection of machinery for making and bottling mineral waters, and syphon bottles of a handsome pattern; and near the west end of the court several makers display machines for bottling and corking champagnes and other sparkling wines.

A number of French burr mill-stones of a fine quality are shown near the northern border of the court, and near these are some fine crucibles, and specimens of various kinds of cements, hydraulic lime and artificial stone. The Roquefort cheese factory exhibits specimens of its famous cheese; the tanners have an extensive exhibit of leather; and the silk-growers of southern France show their raw silk and cocoons. Artificial manures, phosphates, and animal charcoal are also shown.

Germany.

The German section lies on the south of France and extends to the south wall of the building. It fronts on the nave and extends westward to the Austrian court.

At the nave the Rhenish Sparkling Wine Company of

Schielstein have a large pavilion made of wine boxes, and surmounted by an immense wine bottle of glass at each of the four corners, in which they display their famous wines. Back of this pavilion is the collective exhibit of Rhine wines, in which the finest as well as the ordinary grades are shown. Alongside of these wines the German brandies, liquors, extracts and essences are displayed. A fair exhibit is also made of Bavarian and Prussian beer and hops, and of samples of the malt from which these are made.

The confectioners, makers of wax, and manufacturers of smoking and fine-cut tobacco for chewing, cigars and cigarettes, make a large display; and there is a fair exhibit of prepared mustard, sugar and starch. Frankfort sends samples of curled hair, and Prussian Silesia some fine wool. The Royal Steel Works of Fredericksthal, Wurtemberg, have a large stand representing a palm tree. The trunk is of wood, and the branches are scythe blades arranged in a picturesque manner.

The wines are the strong feature of the German exhibit, and no effort has been made to show the agricultural system or resources of that country.

Austria and Hungary.

The Austrian section is situated immediately west of the German court. The display is not large, but is interesting. On the eastern border of the court, fronting Germany, Johann Michael Schary, of Prague, exhibits a collection of raisins and other dried fruits, beer, wine, vinegar and mustards from Bohemia. Beyond this space is an exhibit of Austrian and Hungarian wines; and at the north end of the court Marks & Weyden, of Buda-Pesth, Hungary, exhibit a fine collection of the fruits and nuts of Hungary and the Danubian provinces. To the north of this collection is a display of candied fruits from Vienna, near which are specimens of hemp of an excellent quality grown in Hungary. Samples of fine Hungarian wool are also shown; and near the west end is a collection of the grains of all the different provinces of the Austrian empire. Specimens of flax from Austria and Hungary

are included in the exhibit, and a number of samples of leather from Austria and Bohemia.

Russia.

The Russian court lies on the south side of the central transept, immediately west of the Spanish court, and extends back to the western wall. It is unenclosed, and occupies about one-third as much space as France. It is filled with one of the handsomest and most interesting collections in the Agricultural Building, and one that is richly worth studying carefully.

The wheat, oats, barley, rye and other grains of the empire are shown in the most tasteful manner. They are arranged upon pyramidal stands, bags of the grains being collected about the base of the stands, while stalks with the ripened ears are placed in handsome majolica vases at the top. Large frames are filled with hemp suspended from the top of the frame in order to show the length of the fibre. The agricultural products of the various portions of the empire are shown according to a systematic classification, and many illustrations of Russian farm-life are given. A number of the agricultural implements of the country are exhibited, and two large farm-wagons from Poland constitute a principal feature of the collection. Candied and dried fruits, preserves, crackers and confections are exhibited in glass cases, and the liquors and wines of the country are also shown.

At the western end of the space, a number of exhibitors who were crowded out of the Russian court in the Main Building display a collection of rich and beautiful wares in large cases of oak and plate glass.

As in the Main Building, Russia was one of the last countries to have her exhibit in readiness.

Italy.

The Italian court is situated in the southeast corner of the hall, and covers but a small space. Along the east wall are samples of raw and combed hemp exhibited by P. F. Facchini & Co., of Bologna, and adjoining these are a number of specimens of leather and boots and shoes.

The principal portion of the exhibit consists of wines, liquors, cordials and olive oil, representing all the grades of these articles made in the Italian Peninsula and in Sicily. They are exhibited in bottles, and make an attractive display. In the southeast corner of the court the soap-makers have a creditable display. Large blocks of Castile and olive oil soap are among the most conspicuous objects in the court. A collection of grains, peas, beans and nuts, principally from Sicily and central Italy, is arranged along the southern side of the court, and rice from Piedmont is also shown here. It will be remembered that it was from a small quantity of rice obtained in Piedmont and sent to America by Mr. Jefferson, at the close of the last century, that the finest grades of our own rice have been produced. There is a handsome display of confectionery and candied fruits from Turin; and a case of the minerals found in the Peninsula is shown near the centre of the court. At the western end of the court are a number of specimens of manganese and iron ores from the mines of Rae Brothers, at Monte Argentino in Tuscany. Both minerals are of a fine quality and the ores are exceedingly rich. Milan sends Parmesan and Gorgonzola cheese; Ancona and Turin, leather and hides; Palermo, Rome and Sienna, honey; Bologna, her world-renowned sausages and salted meats; Naples and Sicily, macaroni and dried fruits; Syracuse, nuts; and the other Sicilian cities, oranges, lemons, olives and figs. Sicily also makes an exhibit of a case of the essential oils of fruits, and of some fine liquorice. Sardines are to be seen here in quantities, and in glass and tin, in oil and pickled. Along the northern side of the court are several plows from Ancona, Cremona and Pisa, and a harrow from Venice. They are heavy and clumsy in appearance, and in striking contrast with the fine plows to be seen in the American or Canadian departments.

Spain.

The Spanish court is situated on the south side of the central transept, and extends from the nave back to the Russian section.

As in the Main Hall, Spain makes here one of the handsomest exhibits in the building. Her section is surrounded with

a high wall of yellow wood, in the sides of which are set small glass-covered panels, which are filled with collections of the grains, beans, peas, nuts, fruits, and other agricultural products of the Spanish kingdom. The entrance to the court is through a lofty gothic archway decorated with the arms of the kingdom and the national colors.

Entering the court we find ourselves in the midst of one of the most extensive and best arranged collections in the hall. Immense logs of mahogany and rosewood lie on the ground, and festoons of tobacco leaves and sheaves of grain ornament the pillars, while from the roof along the sides of the court are suspended specimens of skins and Spanish leather. On each side of the entrance stand pyramids of the finest wools of Spain, and along the sides of the court the rich wines of the country are displayed in bottles arranged on shelves rising one above another. At the eastern end are several barrels of the famous Duff Gordon sherries. At the southeast corner of the court the Valencian Society of Agriculture show a collection of the agricultural products of that province. There is a large display of Manilla hemp, and cordage made from it, from the Philippine islands. In the centre of the court is a rustic structure of rough wood, containing specimens of resinous pine and the gums and resins extracted from it; and to the east of this the agricultural products of the Philippine islands are exhibited in glass jars. Near the south end, the cigar-makers of Havana and Manilla have a large and handsome exhibit of cigars, cigarettes and tobaccos. They are displayed in ornamental cases of mahogany mounted upon standards. A large collection of chocolates occupies the northwest corner of the court, and close by it is a tall metal stand containing large jars and bottles of olive oil. The skill and ingenuity with which the articles are displayed is as noticeable as the completeness and excellent character of the exhibit.

Portugal.

The Portuguese exhibit fairly rivals that of Spain both in size and variety. It is distributed in two parts of the hall. The principal section assigned to Portugal lies on the south and west

of the Spanish court, and is filled with a large and varied exhibit of the products of the kingdom. In the section on the south of the Spanish court, the little kingdom displays her oils and wines; the south side of this section being entirely taken up with bottles of Port and Madeira wines. Here also are to be seen the raw silk and cocoons, which form a part of the Portuguese exhibit. In the section to the west of the Spanish court is a very extensive collection of the agricultural products of the kingdom, arranged on shelves and in glass jars. These consist of the grains, roots, fruits, nuts, olives, raisins, dried fruits, and spices of the different provinces of Portugal. Some very large potatoes and turnips are preserved in alcohol. Pickles, preserves, and canned meats, vegetables, and fish are exhibited in large quantities.

The products of the Portuguese colonies are displayed in a similar manner, in a small court in the southeast corner of the hall, between the Italian and English sections.

The Netherlands.

The section assigned to the Netherlands lies south of the southwest transept, and extends from the west wall of the building to the French section on the east, and from the transept to the Austrian and Venezuelan sections on the south. With characteristic industry the Dutch were among the first to have their exhibit ready, and have arranged it with admirable system and neatness.

Starting from the west end of the section we notice the collective exhibits by the agricultural societies of Guelderland and Zealand, of the products of those provinces, including seeds, specimens of grain, plants, dye-woods, photographs of cattle, beans and peas, and a model of a thatched hay-cock. In this exhibit are shown the wooden shoes worn by certain classes of the Dutch peasantry. Close by is an exhibit of a peculiar kind of flour which has the property of keeping pure and sweet for years. Adjoining this is the exhibit of the makers of chocolate and cod-liver oil. A collection of round Edam cheeses is shown to the east of these; and then come specimens of fine flax.

Opposite the flax is the exhibit of cigars and manufactured tobacco.

On the north side of the court are a number of models of old and new style Dutch fishing vessels, from Scheveningen, with a collection of fishing tackle. Large seines for deep-water fishing are suspended overhead.

We come next to the collection of pickles, canned meats, fish, and vegetables, which is large and well displayed. Adjoining this are jars containing samples of different grades of beet-sugar from the Beet-Sugar Factory of Arnhem.

The remainder of the section is taken up with the exhibit of Holland gin, cordials and liquors, which is very large. The principal display is made by the liquor-makers, who occupy a handsome pavilion of wood ornamented in maroon-color and gilt. Here are shown the finest grades of anisette, curaçoa, crème de mocha, noyau, and a hundred other odorous and pungent drinks not much used in this country, but which are very popular in Holland, and especially among the ladies.

Opposite this pavilion, on the north side of the section, the Dutch agricultural society make a collective exhibit of all the agricultural products of Holland. The entire exhibit speaks eloquently of the skill, taste, energy, and thrifty industry of the Dutch.

Norway.

The Norwegian court lies immediately west of that of Brazil, and is enclosed with a light and tasteful railing. Along the front line is a collection of heavy, clumsy-looking plows, such as are used for breaking the rugged soil of this northern land. The exhibit is small, but consists of pale ales and a strong liquor called punch, which is much used in Norway and Sweden, as a stimulant against the intense cold of those countries. Wines, brandy, cordials, tobacco, cigars, confectioneries, essences, and canned meats and fish make up the display. There is a fine exhibit of leather at the back of the court, and specimens of the water-birds of Norway are shown.

In the northwest section of the building, Norway has another space enclosed with a light railing and handsomely draped with

seines and the national colors. Here she makes an exhibit of the products of her fisheries, and shows models of her fishing vessels of all kinds and their equipments, specimens of fishing-tackle, and samples of dried and preserved fish, anchovies, etc., as they are prepared for the market. For the purposes of this display, some of the larger kinds are preserved in alcohol.

Sweden.

The Swedish court lies immediately west of that of Norway. Along the north side are a number of fine plows, every part being of metal. They are intended for deep plowing, and seem capable of doing good work.

The liquors, especially bottled punch, are a strong feature of the display. Here are also confections, prepared coffee, crackers, snuffs, and chewing tobacco. A chemist from Stockholm has a case of phosphates and other preparations of agricultural chemistry. Towards the west end of the space are models of the various kinds of vessels used in the Swedish fisheries, with samples of fishing-tackle, and overhead are suspended the seines used by the Swedish fishermen. Specimens of the fish of the country are exhibited in alcohol. A number of samples of leather hang against the wall. The exhibit of native woods is complete and interesting. The grains of the country are shown in glass jars and also in the stalk and ear, and close by are a number of covered earthen jars containing samples of flour made in Sweden.

Sardines, anchovies, herrings, and potted meats, scythes, and dairy utensils complete the collection.

Denmark.

The Danish section lies west of the Norwegian and south of the Swedish court. It is small, and the exhibit is made up of Danish punch, grains in the blade and in small canvas bags, brandies, pickles, preserves, and potted meats and fish.

Belgium.

The Belgian section lies west of the nave, and immediately east of the Spanish and Portuguese courts. The exhibit is very small, but thirty-eight persons taking part in it. It comprises chiccory, raw, in the pod, and manufactured, chocolate, and the details of chocolate manufacture, specimens of fine leathers and kid, candies, cordials, gin, flax, wool, and millstones.

Japan.

The Japanese court is situated in the southwest corner of the hall, immediately west of the Austrian section, and is divided into small passage-ways by canvas screens. Each passage-way is provided with long rows of shelves on which the articles exhibited are arranged. Along the south wall, samples of native tobacco are shown; but the greater part of this section of the court is devoted to an exhibit of the teas of Japan. Specimens of tea are shown, and the process of tea-culture is illustrated by a number of drawings of the different stages of the growth of the plant.

Along the west wall is a display of the fishing-tackle, nets, etc., used in Japan, with specimens of cured fish, some of which are put up in canvas, like bacon. Fishing-nets are suspended overhead, and a part of the space along the west wall is given to an exhibit of the few simple agricultural implements used in Japan, a primitive-looking plow and harrow, a scythe and cradle.

On the north side of the south aisle of this court is a beautiful exhibit of the culture of silk as carried on in Japan. It is shown by specimens of the worm and cocoon, and of floss silk, and by models and drawings with explanations in English.

In the next aisle on the north is a large collection of skins of fish and animals, and of shells, also samples of cotton from the government manufactory.

The south side of the next aisle on the north is taken up with a display of tackle for hand-fishing, very much like our own, but made with the neatness that characterizes everything of Japanese workmanship. On the north side of this aisle is a

collection of sauces made from vegetable substances, and contained in stone bottles.

In the last aisle on the north the grains and other agricultural products of Japan are shown according to a systematic classification, and on the southern wall of this aisle is a display of the native woods of the empire. Each block of wood has affixed to it a specimen-leaf or twig of the tree from which it was taken.

Brazil.

The Brazilian section lies west of the nave and extends back to the Norwegian court. The French section bounds it on the south and the Portuguese on the north. Brazil was one of the very first of the foreign nations in this hall to have her exhibit in readiness, and it is fully in keeping in thoroughness and beauty with her display in the Main Building.

In front of the court in which the principal display is made stands one of the most unique structures in the building. It is a rustic pavilion, the posts and rafters of which are wrapped in native cotton, giving to it at a distance the effect of an immense house of snow. The different grades of Brazilian cotton are shown in bales arranged around the sides of the pavilion. The annual production of cotton in the empire amounts to about \$14,902,443. Within the pavilion the different grades of Brazilian coffee are shown in jars and boxes of fanciful design, the Mocha and Rio being conspicuous among the other grains. The annual product of coffee in Brazil is \$64,047,481, thus making its culture the principal and most profitable industry of the empire. Samples of native leaf tobacco are also shown in this pavilion.

The principal court lies immediately in the rear of the cotton pavilion, and is enclosed by a brilliantly ornamented railing, decorated with streamers of green and yellow and national flags. The collection of native woods is astonishing in the number and richness of the specimens displayed. It comprises over one thousand different woods, among which rosewood and mahogany are conspicuous, and is arranged along the entire court. A considerable display is also made of leather and skins, which are

suspended overhead around the court. The wines and liquors of the empire are shown, though these do not as yet constitute a very prominent Brazilian industry.

The annual product of sugar in Brazil amounts to \$15,403,151, making it the second industry of the empire. Twelve different kinds of sugar are shown in this court, and will compare favorably with the sugars of our own Southern States and the West Indies.

The exhibit includes cocoa in the nut and prepared for the market; rice from Maranhao; starches; rubber, ready for the market and in the crude gum; ninety different varieties of edible beans; Brazilian teas, the culture of which is as yet in its infancy; gums, resins, canned goods, hemp; vegetable fibres for making rope, and a finer fibre which can be worked up into a sort of wool; wax, pickles and preserves.

The tobacco exhibit is large, and, besides smoking tobaccos, cigars and cigarettes, includes fourteen different kinds of snuff.

The Brazilian silk-worm and its habits are shown in an admirable manner. The Brazilian worm winds itself in such a way with its silk threads that in utilizing the silk the grower does not have to kill the worm, as is the case with the Asiatic worm. This worm is abundant in nearly all parts of the Brazilian empire, and produces in each generation an average of two hundred and forty cocoons of silk; each cocoon weighing two and one-half drachms and containing thirty grains of good silk. The Brazilians take great pride in their silk culture, and every effort is made to extend and improve it from year to year.

Venezuela.

The Venezuelan exhibit arrived so late that it could not be given a place in the Main Exhibition Building, and was assigned a section in Agricultural Hall. This section lies in the southwest quarter of the hall, north of Japan and west of Austria. It is enclosed by a tasteful railing, ornamented in red and blue.

The collection is almost entirely agricultural in its character, and includes the grains, vegetables, fruits and barks of the re-

public. A large exhibit of coffee is made, and cochineal forms a considerable part of the display. A collection of oils, balsams, rum, and the famous Angostura bitters, is also exhibited. The skins of the native animals of Venezuela are suspended overhead, and samples of native tobacco are affixed to the pillars of the court. Pine-apples and other large fruits are shown in alcohol.

A cabinet of very rich gold-bearing quartz and other minerals stands on the north side of the section, and on this side are also exhibited specimens of Venezuelan printing and book-binding, chocolates, boots and shoes, fruits in wax, embroideries, leather, and flowers made of the feathers of native birds. A portrait of Washington, surrounded by national emblems, made of human hair, is also shown. Samples of sugar and dye-woods complete the collection.

The Argentine Republic.

The section assigned to the Argentine Republic lies back of Portugal and south of the Russian court. It is enclosed with a light wooden railing, ornamented with the national colors. Festoons of the leaf of the native tobacco are hung about the court, and the skins of the native wild animals of the country are suspended overhead.

The collection is very large, and includes over six hundred exhibitors. It comprises the native woods, barks, gums, resins, dye-woods and seeds of forest products; the grains, sugars, beans, peas, fruits, tobacco, coffee, chocolate, wines, dried fruits, nuts, liquors, leather, starch, flour, wax, honey, cotton and wool of the country. An exhibit is made of the silk grown in the republic, and several grades of sugar are shown.

Liberia.

The Liberian section is located at the east end of the hall, north of the southeast transept, and to the east of the Canadian section. It is the only display made by Liberia in the entire Exhibition, and is due entirely to the energy of Messrs. E. S. Morris & Co., of Philadelphia, who are extensive growers of

coffee in that far-off land. The members of this firm have assumed the entire expense of the exhibit, and deserve praise for their generous conduct. It may be said that they have been the principal means of developing the culture of coffee in Liberia, which is now one of her most prominent industries. They have also given themselves heart and soul to the work of civilizing Liberia by educating its people, and have caused a number of native African boys to be educated at the Lincoln University, at Chester, Pennsylvania, and intend sending them back home next year to establish schools among their own people. All the proceeds of the sales of Liberian coffee at this stand during the Exhibition are devoted to the building of school-houses. Messrs. Morris & Co. intend to supply the deficiency from their own means. They will establish the schools as soon as possible, and require each pupil to pay for his tuition by planting and cultivating a small patch of coffee at his own home. Thus they hope to make Liberia a great coffee-growing country, and to extend the production of that article among the native tribes of the interior of Western Africa.

The collection exhibited here consists of coffee principally. This is of an excellent quality, as the writer can testify from a personal knowledge of it. Palm soap is the next exhibit in importance. Palm oil is shown in glass jars hermetically sealed. Lime-juice, chocolate, arrow-root, sugar, indigo, ivory and iron ore, make up the list of Liberian products. Messrs. Morris & Co. have their own indigo works in Liberia, the only establishment of the kind on the west coast of Africa. A coffee-hulling machine forms a part of the exhibit, and there are a good many curiosities in the way of implements and clothing made by the native tribes. The cap and robes of an African king are also shown. Ten native African boys, taken from the bush, and destined to serve as teachers, as mentioned above, are on duty in this department.

The Pomological Annex.

To the east of Agricultural Hall is a large wooden building intended for the various displays of ripe fruits and vegetables

which are to be made from time to time during the progress of the Exhibition.

The Wagon Annex

Is situated to the north of Agricultural Hall, and is simply a series of rough sheds, whitewashed. It contains a fine display of farm wagons and carts, bakers' and milk carts and ice wagons. These represent the highest degree of skill in wagon making, and show an admirable combination of lightness and strength, which is particularly characteristic of American workmanship in this department. They are handsomely ornamented, as a rule. American-made wagons have long commanded a high reputation in the markets of Europe for their admirable workmanship and beauty of design, as well as for their marked superiority over European vehicles in the combination of lightness, strength and durability, to which we have referred.



CHAPTER XV.

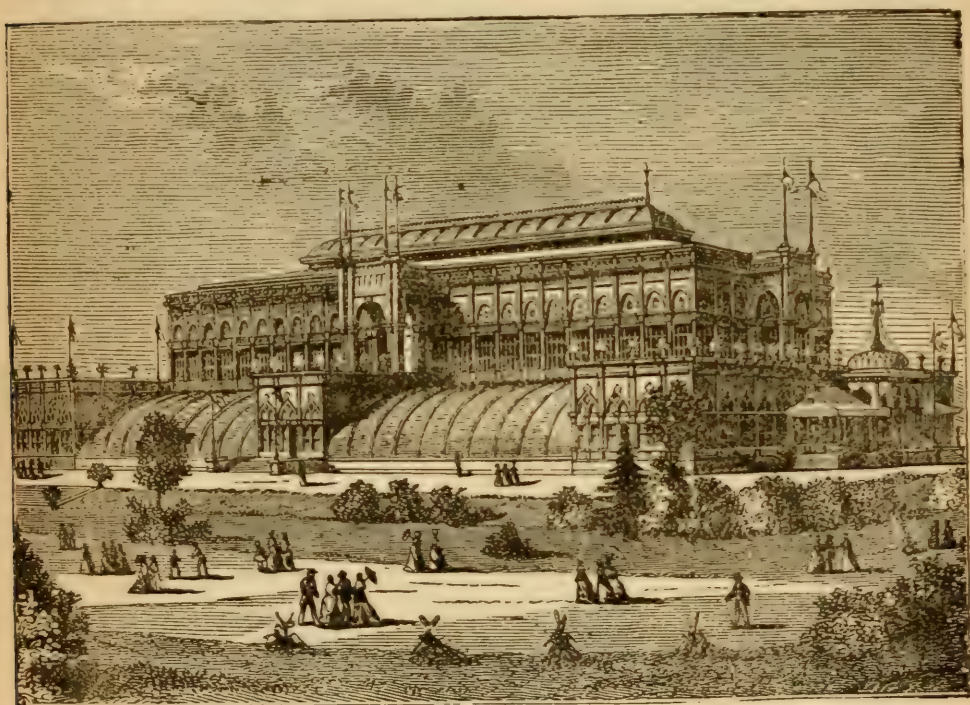
HORTICULTURAL HALL.

Description of the Building—The Grand Conservatory—A Beautiful Hall—The Fountain—Cost of the Building—Classification of the Exhibit—A Rich Collection of Tropical Plants—A Beautiful Scene—The Forcing Houses—The East and West Rooms—Exhibit of Gardening Materials—The Electrical Organ—The Horticultural Grounds—The Guano Pavilion—The Tent—Anthony Waterer's Rhododendrons—The Cuban Summer House.

THE Horticultural Building is the smallest of the five principal edifices of the Exhibition. It stands on the Lansdowne terrace, a short distance north of the Main Exhibition Building, from which it is separated by the Lansdowne valley. It is located a short distance back from the brow of the hill which rises from the Schuylkill, and commands a fine view of the river, the city and the surrounding country. The design of the building is in the Mauresque style of architecture of the twelfth century, the edifice being constructed principally of iron and glass. Seen from a distance the effect is charming. The exterior is painted in variegated colors, which give to the building a light, fairy-like aspect, in perfect keeping with its graceful design. The length of the building is 383 feet, the width 193 feet, and the height, to the top of the lantern, 69 feet.

The main floor is occupied by the central conservatory, 230 by 80 feet, and 55 feet high, surmounted by a lantern 170 feet long, 20 feet wide and 14 feet high. Running entirely around this conservatory, at a height of 20 feet from the floor, is a gallery 5 feet wide. On the north and south sides of this principal room are four forcing-houses for the propagation of young plants, each of them 100 by 30 feet, covered with curved roofs of iron and glass. Dividing the two forcing-houses in

each of these sides is a vestibule 30 feet square. At the centre of the east and west ends are similar vestibules, on either side of which are the restaurants, reception room, offices, etc. From the vestibules ornamental stairways lead to the internal galleries of the conservatory, as well as to the four external galleries, each 100 feet long and 10 feet wide, which surmount the roofs of the forcing-houses. These external galleries are connected with a grand promenade, formed by the roofs of the rooms on the ground-floor, which has a superficial area of 1800 square yards.



HORTICULTURAL BUILDING.

The east and west entrances are approached by flights of blue marble steps from terraces 80 by 20 feet. In the centre of each stands an open kiosk, 20 feet in diameter. Each entrance is adorned with ornamental tile and marble work, and the angles of the main conservatory are provided with eight ornamental fountains.

The basement is of fire-proof construction, and contains the kitchen, the heating apparatus, store-rooms, coal-houses, etc.

Mounting the marble steps and passing through the vestibule to which they lead, the visitor finds himself in the main conservatory, a spacious and beautiful hall, which elicits the admiration of every beholder. The roof is of glass, and the iron framework in which the glass is set is tastefully decorated in fresco. A light gallery, with railings of open fretwork, extends around it, and opens at each of the four sides of the hall upon the external galleries to which reference has been made. It is supported by horse-shoe arches of black, white and red bricks. Two superb chandeliers hang from the roof, affording the means of brilliantly illuminating the hall at night.

In the centre of the hall is a large fountain of marble, executed by Miss Margaret Foley, an American artist, in Rome. It is a tall structure, the water falling from several successive basins into the pool below, in which is a group of statuary in marble, of quaint design. It represents a group of children bathing from a reedy bank. One joyous little one is blowing a shell, and another, half reluctant to plunge into the cold water, upon which she gazes down, leans lightly on the chubby shoulders of a third child. From the fountain walks radiate to the north, east, west and south, and divide the floor of the conservatory into beds.

Around the hall is a row of corridors, from which the arches which support the inner gallery open into the conservatory.

The Horticultural Building is the property of the city of Philadelphia, and will remain a permanent ornament of the park after the close of the Exhibition. It cost \$300,000, which sum was defrayed by appropriations by the City Councils. The ground was graded and the foundations laid on the 1st of May, 1875, and the building was completed April 1st, 1876. It covers an area of about an acre and a half. The architect was H. J. Schwarzmamm; the contractor, John Rice, both of Philadelphia. The wrought-iron was furnished by the Keystone Bridge Company, of Pittsburgh; the cast-iron by Samuel J. Cresswell, of Philadelphia; the painting was done by Joseph Chapman, of Philadelphia; and the masonry by Moore & Scattergood, Philadelphia.

The collection exhibited in the Horticultural Building is classified as follows by the Centennial Commission :

DEPARTMENT VII.—HORTICULTURE.

- 700—709....Ornamental Trees, Shrubs and Flowers.
- 710—719....Hot-houses, Conservatories, Graperies.
- 720—729....Garden Tools, Accessories of Gardening.
- 730—739....Garden Designing, Construction and Management.

The conservatory, or main hall, of the building is filled with a superb collection of rare and luxuriant tropical trees and shrubs. The side spaces of the hall are filled with statuary, the most important work being a colossal Diana in plaster composition from the famous Doulton potteries in England.

The collection of plants in the conservatory is deeply interesting, and is deserving of careful study. Here are the broad fan palm, the sago, date and cocoa palms, all of full size, and as graceful as a dream of Eastern romance. The orange and lemon trees, with their rich golden fruit, the camphor tree, with its luxuriant growth of sharply cut leaves; the eucalyptus, which is said to have the property of neutralizing the malarial poisons of the air; the guava; the mahogany, and the India rubber tree, with its thick, heavy leaves, all make up a rich and beautiful display of foliage, which is charming from whatever part of the hall it is viewed. A banana, with its fat, sturdy branches of fruit, forms a conspicuous object of the collection, and a number of fine cacti are scattered through the hall.

It would not be possible to give a complete account of the plants gathered within this hall, without making a copy of the catalogue, and we must content ourselves with the brief summary given above.

The green-houses, which extend on either side of the conservatory, are sunken eight or ten feet below it. These, as has been said, are four in number, and are covered with curved roofs of glass. Each is 100 by 30 feet in size, and is intended for the propagation of young plants. In one of these forcing-houses is a collection of tree-ferns gathered from almost every

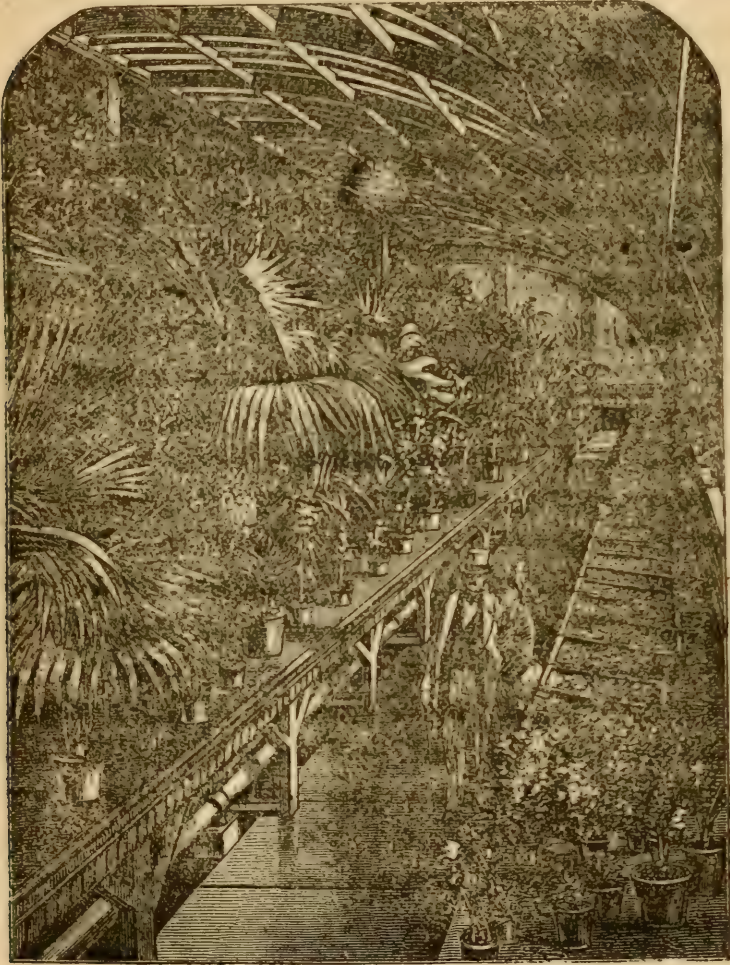
country on the globe, and a number of rare plants from an English green-house, which were sent to this country carefully packed in moss. Among the curious specimens gathered within these forcing-houses are a number of fragrant azalias from Belgium, the flower of which is of a pale cream color; and close by them is a maple from Japan with crimson shadings in



STAIRWAY IN HORTICULTURAL HALL.

its fine cut leaves. There is also a group of pitcher plants from the South Sea islands, which bear a blotched greenish cup, which looks as if it were made for a frog to drink out of. A flamingo plant (*Authurium Williamsii*) is a notable member of the stately assemblage, its blossoms of deep rich scarlet being in form simply a broad curled leaf. Close by it stands a deli-

cate fairy-like Norfolk Island pine; and the Sandwich islands send some fine specimens of fern, which spread out from the stem like a broad umbrella. A most interesting tree is a sago palm, about ten feet high. It was once the property of Robert Morris, the great financier of the Revolution, and is said to be



THE FORCING-HOUSE, HORTICULTURAL HALL.

from one hundred and twenty-five to one hundred and thirty years old.

The lover of the beautiful in nature may spend hours in this rich collection. One of the green-houses contains a superb collection of ferns, belonging to a gentleman of South Amboy, New Jersey, and valued at \$10,000.

The rooms at each end of the building are handsomely frescoed, and are filled with a variety of horticultural appliances. The room on the north side of the western entrance is the office of the chief of the Bureau of Horticulture. That on the opposite side is used for the display stands and frames for flowers, aquaria, and wax-flowers, and along the walls are arranged a number of designs for landscape-gardening. The room opening into this contains a similar display, and a number of handsome garden vases, and garden tools, watering-pots, and hanging-baskets. At one side of the room Henry A. Dreer, of Philadelphia, makes a handsome exhibit of garden and flower seeds, garden tools and implements and flower stands.

In a room on the north side of the west entrance, adjoining the office of the Bureau, is an exquisite display of cut flowers by Pennock & Bro., of Philadelphia; a case of natural flowers and fruits preserved by a new process; and a large collection of flowers and fruits in wax.

At the eastern end the rooms adjoining the entrance contain apparatus for heating green-houses, furniture for them, garden tools, iron furniture and ornamental work for gardens and lawns. There is also a large collection of lawn-mowers and of garden vases.

The view from the west end of the building is very beautiful. It embraces the Main and Machinery Halls on the left hand, and a number of smaller buildings to the north of them. To the westward are the United States Building, the Woman's Pavilion and the State Buildings, while to the left the towers of Agricultural Hall rise through the trees. Almost the entire expanse of the Exhibition grounds can be seen at a glance from this point. The view from the eastern end is as interesting, but different. It embraces the Schuylkill with the East Park, Laurel Hill, and the country beyond, and in the distance one can see the towers and spires of the city. To the right the eastern ends of the Art Gallery and Main Hall fill up the picture, with the wooded depths of Lansdowne Valley lying between them and the gazer.

In the eastern gallery of the conservatory is one of the most

remarkable machines to be seen in the Exhibition. It is the "Electro-Magnetic Orchestra," and is exhibited by the inventors, Wm. F. & H. Schmoele, of Philadelphia. It consists of an "Orchestrion," which is supplied with wind in the ordinary way from a bellows, but which reads the music it is to perform and executes it by the action of electricity.

"The automatic reading is based upon the idea that if the music notes be printed on paper in metallic or conducting marks (such as printers style illuminated work), the electricity will distinguish the conducting characters thus formed from the non-conducting surface of the paper, and will thus be made to feel or 'read' the notes. If, in place of this printed music, the notes be cut as perforations in the sheet, and a metallic plate be placed beneath, over which the sheet is drawn, this plate, which shows through the paper wherever the perforations exist, answers practically the same purpose as the marks on the printed sheet, being in fact but an additional modification of the same principle. The perforated notes have been preferred for the music of the present instrument, because the sheets can thus be prepared by hand, thereby obviating the otherwise costly necessity of setting up type and going to press for single copies of the pieces desired. Such notes bear the same relation to the printed or gilt ones that manuscript does to printed matter.

"The music sheets are in the forms of rolls, which are drawn under a row of charged feelers or 'readers,' whose office is to distinguish the notes. They are moved by passing between two gum-covered rollers, rotated by a mechanism called a 'wind-engine.' The motor power of this is the compressed air or 'wind' of the bellows of the instrument; and it contains, in its construction, all the necessary elements of a steam-engine, represented, however, in such different forms, that no resemblance to the latter is left. It is a double engine, each pair of opposite wind-pockets being equivalent to a steam-cylinder; and the alternate movements of their swinging leaves are the counterparts of the push and return of the piston-head. The noise or puff is prevented by a peculiar construction of the valves, and the manner of working of the cut-off; and the expanding gussets

of the pockets take the place of the 'packing' in a steam-cylinder, over which they have the great advantage that they consume no power in friction, so that the wind-engine is exceedingly economic, using the whole force of the wind without waste. These advantages, and the cheapness of construction of this wood and leather engine, render it an admirable motor for low pressures.

"The present instrument has several hundred 'readers' or feelers, standing close together in order that a great many may be placed in a small space. The electricity, which may be called a hundred-fingered performer, pervades them all, ready to pass at a moment wherever a note occurs. The various instruments, representing a band of twelve pieces, besides the drums, etc., have their appropriate spaces allotted them on the music sheet; and the connections between their 'readers' and the performing parts are made by wires, which, when grouped together, form the cable running from the reading apparatus to the main case. Each note, as soon as detected, is telegraphed to the corresponding performing magnet; and as a great number may be simultaneously read, it follows that the music may be exceedingly varied."

About twenty-five acres of ground immediately around the Horticultural Hall have been laid off as an ornamental garden by Mr. C. H. Miller, the Chief of the Bureau. These grounds are filled with a beautiful display of native and foreign flowers, which give to them an exceedingly brilliant and charming appearance. A broad sunken garden leads from Belmont avenue to the western door of the Horticultural Building. It is bright with flowers of a thousand different hues, and sparkles with handsome fountains. The flowers of England, France, Germany, and the tropics grow side by side with those of our own country in the beautiful garden, in the midst of which the grand Conservatory stands like a central jewel in the midst of a thousand gems of various hues.

At the western end of the Horticultural grounds the Pacific Guano Company, of Boston, Massachusetts, have a beautiful Moorish pavilion, in which they display samples of their fertilizer. The grounds immediately around this pavilion are

planted with tobacco, and a number of tropical plants, which thrive admirably in this soil, which has been fertilized with the guano of this company.

At the north side of the Horticultural Building is a large tent-like structure, consisting of a series of wooden arches covered with canvas. It is designed for the exhibition of flowers in bloom, and was first used for the display of a magnificent collection of rhododendrons by Mr. Anthony J. Waterer, of the famous Knapp Hill Nurseries, in England.

A large exhibit is made of rustic furniture, seats, fencing, etc., which is scattered through the grounds. At the south side of the hall, on the slope of the Lansdowne Valley, Cuba exhibits a collection of rustic work and flowers in a tasteful summer-house, and back of this is a fisherman's hut of bark, such as is everywhere to be seen on the coasts of the West India islands.



CHAPTER XVI.

MEMORIAL HALL.

Description of the Building—Bronze Groups of Statuary—The Annex—Classification of the Art Exhibit—The Reception and Central Halls—The Paintings and Statues in them—The Art Galleries—Notable Pictures by American Artists—The English Gallery—Masterpieces of the Modern English Painters—The Older English Artists—The Queen's Pictures—The South Kensington Exhibit—The French Pictures—The German Gallery—The Austrian Collection—A Fine Collection of Italian Statuary—Italian Paintings—The Castellani Collections—Spanish Pictures—Art Gems from Sweden and Norway—Masterpieces of the Modern Dutch School—Notable Pictures from Belgium—The Danish Gallery—Brazilian and Mexican Art—The Photographic Annex—A Fine Display of Photographs.

MEMORIAL HALL is the most substantial of all the Exhibition buildings. The materials of which it is constructed are stone, iron and glass. It was built at a cost of \$1,500,000 by the State of Pennsylvania and city of Philadelphia, and is designed as a permanent memorial of the Centennial year of American independence. It is placed at the disposal of the Centennial Commission to be used during the Exhibition as an art gallery, after which it is designed to make it the receptacle of the Pennsylvania Museum of Industrial Art, an institution similar to the South Kensington Museum, at London.

The building stands on the plateau on which the Main Exhibition Building is located, and is about two hundred to two hundred and fifty feet north of that structure. It is planted upon a broad terrace six feet above the general level, the banks well turfed and bordered with shrubbery, to which the visitor ascends by broad and easy steps in front, or smaller ones at the side.

At each side of the front row of steps are enormous bronze

figures of horses held in check by women in flowing drapery. On the right of the building is a fine group of bronze, representing the firing of a shell from a large mortar. The shell has been fired, and an officer of the naval service, glass in hand, is leaning forward watching its course. A sailor has sprung on top of the mortar, and is shading his eyes with his hand and looking in the same direction. Another stands on the right of the mortar and is similarly engaged. The expression of the figures is excellent.

The group on the left of the hall represents a lioness dying in the midst of her whelps. The arrow of the hunter is deeply imbedded in her shoulder, and she is in the agonies of death. Her whelps are gathered about her in mute astonishment, and the male lion, who realizes the full extent of the misfortune, is standing ready to defend or avenge his mate.

Memorial Hall is three hundred and sixty-five feet long, two hundred and ten feet wide, and fifty-nine feet high over a basement of twelve feet. It is built of granite, with an iron and glass roof, iron being altogether used in the place of wood, and is entirely fire-proof. The design is a modern renaissance. The general plan is a right-angled parallelogram, relieved by square towers at each of the four corners, and by projecting vestibules and steps in the centre of each of the long sides. It is crowned by a central four-sided dome, rising one hundred and fifty feet above the ground and capped by a colossal ball, from which rises the figure of Columbia. At the base of this dome are seated four figures representing the four quarters of the globe.

“The main front looks southward ; it displays three distinctive features :

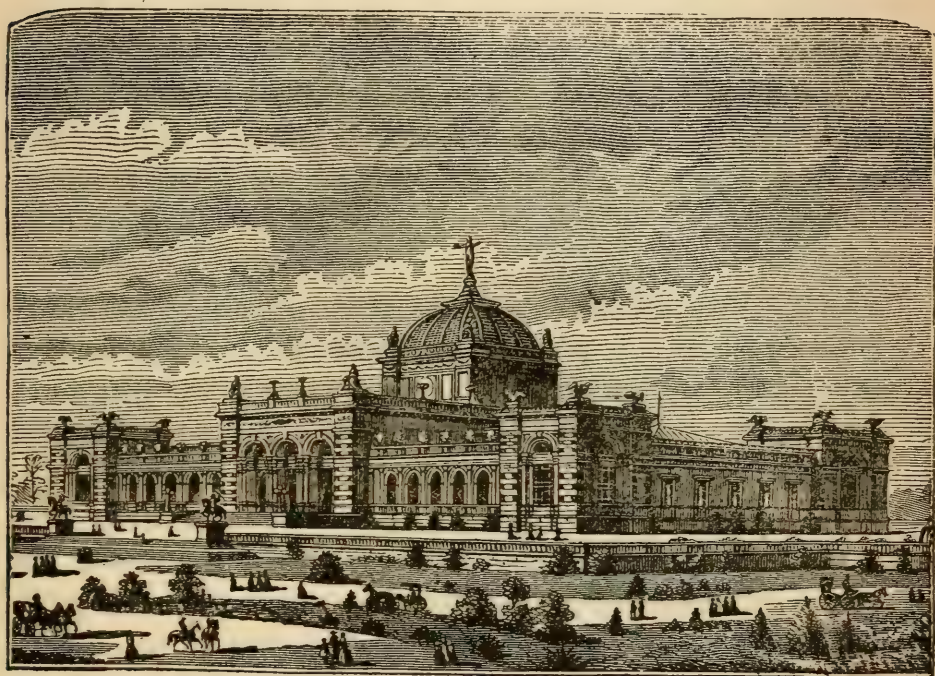
“*First.* A main entrance in the centre of the structure, consisting of three colossal arched doorways of equal dimensions.

“*Second.* A pavilion at each end.

“*Third.* Two arcades connecting the pavilions with the centre. The central section is ninety-five feet long, seventy-two feet high ; the pavilions are forty-five feet long, sixty feet high ; the arcades each ninety feet long and forty feet high.

“The front of the south face of the central section displays a rise of thirteen steps to the entrance seventy feet wide. The entrance is by three arched doorways, each forty feet high and fifteen feet wide, opening into a hall. Between the arches of the doorways are clusters of columns terminating in emblematic designs illustrative of science and art.

“The doors, which are of iron, are relieved by bronze panels, having the coats of arms of all the States and Territories. In the centre of the main frieze is the United States coat of arms.



MEMORIAL HALL, OR ART GALLERY.

The main cornice is surmounted by a balustrade with candelabra. At either end is an allegorical figure representing science and art.

“Each pavilion displays a window thirty feet high and twelve feet wide; it is also ornamented with tile-work, wreaths of oak and laurel, thirteen stars in the frieze, and a colossal eagle at each of its four corners.

“The arcades, a general feature in the old Roman villas but entirely novel here, are intended to screen the long walls of the gallery.

“These each consist of five groined arches—these arcades form promenades looking outward over the grounds and inward over open gardens, which extend back to the main wall of the building. These garden-plats are each ninety feet long and thirty-six feet deep, ornamented in the centre with fountains and designed for the display of statuary. A stairway from the gardens reaches the upper line of these arcades, forming a second promenade thirty-five feet above the ground. Its balustrade is ornamented with vases, and is designed ultimately for statues. The cornices, the atticas, and the crestings throughout are highly ornamented.

“The walls of the east and west sides of the structure display the pavilions and the walls of the picture galleries, and are relieved by five niches designed for statues; the frieze is richly ornamented—above it the central dome shows to great advantage.

“The rear or north front is of the same general character as the main front, but in place of the arcade is a series of arched windows, twelve in number, with an entrance in the centre; in all, thirteen openings above, in an unbroken line, extending the entire length of the structure; between the pavilions is the grand balcony—a promenade two hundred and seventy-five feet long and forty-five feet wide, and elevated forty feet above the ground, overlooking northward the whole panorama of the park grounds.

“The main entrance opens on a hall eighty-two feet long, sixty feet wide and fifty-three feet high, decorated in the modern renaissance style; on the farther side of this hall three doorways, each sixteen feet wide and twenty-five feet high, open into the centre hall; this hall is eighty-three feet square, the ceiling of the dome rising over it eighty feet in height.

“From its east and west sides extend the galleries, each ninety-eight feet long, forty-eight feet wide, and thirty-five feet in height. These galleries admit of temporary divisions for the more advantageous display of paintings. The centre hall and galleries form one grand hall two hundred and eighty-seven feet long and eighty-five feet wide, capable of holding eight

thousand persons, nearly twice the dimensions of the largest hall in the country. From the two galleries doorways open into two smaller galleries, twenty-eight feet wide and eighty-nine feet long. These open north and south into private apartments which connect with the pavilion rooms, forming two side galleries two hundred and ten feet long. Along the whole length of the north side of the main galleries and central hall extends a corridor fourteen feet wide, which opens on its north line into a series of private rooms, thirteen in number, designed for studios and smaller exhibition rooms.

"All the galleries and central hall are lighted from above; the pavilions and studios are lighted from the sides. The pavilions and central hall are designed especially for exhibitions of sculpture."

The work on Memorial Hall was begun on the 4th of July, 1874, and the building was completed on the 1st of March, 1876. The architect was H. J. Schwarzmänn; the contractor R. J. Dobbins, both of Philadelphia. The iron-work was furnished by the



EAGLE USED IN ORNAMENTATION OF
MEMORIAL HALL.

Edgemoor Iron Company, the Pencoyd Rolling Mills, and the Kittredge Cornice Company. The stone-work was furnished by Sargent & Co., the Westham Granite Company, the Conshohocken Stone Company, S. F. Prince & Co., and the Excelsior Brick Company. The glass was furnished by Shoemaker & Co., Ward & Co., and J. M. Albertson.

At an early period of the work on Memorial Hall it was found that the applications for space in it were so numerous that the building would not accommodate the works of art to

be exhibited in it. An extension, or annex, was therefore built immediately north of the hall. It is of brick and iron, and harmonizes well with the principal building in design and color. It is intended to be permanent. The principal building gives 75,000 feet of wall space for painting, and 20,000 feet of floor space for statuary, etc. The annex affords 60,000 square feet of wall space for paintings, and contains thirty galleries, each forty feet square, besides four galleries each one hundred feet long by fifty-four feet wide, and two transverse central corridors twenty feet wide.

The exhibit of works of art contained in these buildings is thus classified by the Centennial Commission:

DEPARTMENT IV.—ART.

400—409....Sculpture.

410—419....Painting.

420—429....Engraving and Lithography.

430—439....Photography.

440—449....Industrial and Architectural Designs, etc.

450—459....Ceramic Decorations, Mosaics, etc.

The exhibition of photographs is so large that a third building was provided for it. It will be described at the close of this chapter.

From the main entrance the visitor passes into the south hall or vestibule of the building. The wainscoting is of colored marble, but the remainder of the hall is finished in simple white. It is in the modern renaissance style, and is elegant and tasteful. A magnificent crystal chandelier, exhibited by Cornelius & Sons, manufacturers of gas fixtures, Philadelphia, hangs from the ceiling. At the north side three massive arches open into the central hall, and at the east and west sides doors lead to the gardens lying within the arcades of the southern front of the building.

The hall is filled with statuary in marble and bronze. Against the arches of the north wall is a colossal bust of Washington, by Pietro Guarnerio, of Milan, Italy. The collection of statuary is very good, and we shall allude to it again in our remarks upon the Italian section.

The gardens and arcades on the east and west sides of the main entrance are prettily ornamented with flowers, and contain a small collection of statuary. In the eastern arcades is a fine bust of Dante, and another of Michael Angelo. In the garden on the west side are some interesting specimens of statuary and vases in spelter.

Passing through the arches at the north end of the south hall, we enter the central hall, a spacious and beautifully proportioned apartment, lighted from the dome overhead. It is finished in simple white, and it is to be regretted that its beauties were not enhanced by a judicious use of color in its decorations.

In the centre, under the dome, is a copy in terra cotta of the large group representing "America," from the Albert Memorial in Hyde Park, London. At the south side of the hall is a life-size bronze statue of Professor Morse. He is represented in the act of examining his first telegraphic message. On the same side is a bronze statue of Robert R. Livingston, of New York. At the southeast corner, fronting the German department, is a fine colossal statue of Prince Bismarck. At the southwest corner is an equestrian statue in plaster of President Blanco, of the republic of Venezuela; and just back of this is a fine allegorical painting, by Professor E. Von Reuth, representing America doing homage to the spirit of her institutions. A number of vases in bronze, by the late Horatio Stone, are scattered through the hall. At the north side is a handsome memorial altar and reredos in marble from Italy. It is adorned with pictures in mosaic work, representing the Adoration of the Magi and the Shepherds, and the Crucifixion. The latter is a copy of the famous painting by Guido Reni, in the Church of St. Lorence, in Lucina, at Rome. The northeast corner, fronting the German department, contains three superb vases of Sevres porcelain and some bronzes, among which are a statuette of President MacMahon, in silver bronze, and a full-sized Egyptian girl, with a harp, in ornamental bronze.

The space in the centre, around the base of the group representing America, is filled with statuary, chiefly by American

artists. The most important works are Thetis, with the infant Achilles in her arms, thinking how she may regain the boy's birthright, by P. F. Connelly; a bust of Charles Sumner, by Preston Powers; a bust of Cleopatra, by Miss Margaret Foley; and a full-length statue of Medea, by W. W. Story.

The halls on the east and west of the central hall are divided by partitions into smaller apartments, which are assigned to the various countries taking part in the Exhibition. The corridors which lead east and west from the central hall are thus merely temporary. They are lined with paintings.

It will not be possible to give a complete list of the works of art in the Memorial Hall and the annex, nor to describe each of them. We can but glance at the various departments, calling attention only to the most prominent works in them.

The United States.

The American department is divided between Memorial Hall and the annex. It fills one large hall, a corridor and a part of a second in the principal edifice, and nine galleries and a corridor in the annex, and comprises several thousand pictures and statues. As a whole it has been much criticised, and is not accepted by the critics as the best exposition of American art that could have been given. Still it contains works of which the country has reason to be proud.

One of the ends of the American gallery in Memorial Hall is entirely covered by Rothermel's large painting of the Battle of Gettysburg, which formerly stood in the Art Gallery at old Fairmount. This painting has been sharply criticised, but nevertheless finds much favor with the masses who daily throng around it.

A notable picture is "Going to Church in New England in the Olden Time," by George H. Boughton. Edward Moran exhibits two fine marine views, "The Coming Storm over New York Bay," and "Minot's Ledge Light." Thomas Moran exhibits his "Mountain of the Holy Cross," and the "Hot Springs of the Yellowstone," two of the most superb pieces of mountain scenery in existence. Eastman Johnson sends two pictures in

his happiest style, "A Kentucky Home" and "What the Sea Says." M. F. H. De Haas has a fine marine view, "Moonrise at Sunset." J. F. Cropsey has a careful study of a "Church in the Isle of Wight," which is much admired. W. Whittredge's "Home by the Sea" is a beautiful work; and R. S. Gifford's "Fishing Boats of the Adriatic," "Lake Geneva" and "The Golden Hour" show the artist at his best. Charles N. Miller, of New York, sends two excellent works, "Returning to the Fold" and "The Old Mill at Springfield." J. F. Kensett has a fine view of "Conway Valley, New Hampshire." G. P. A. Healey has several of his most carefully and solidly-painted portraits in the collection. Daniel Huntington sends a view of "Lake George," and Toby Rosenthal has an "Elaine," representing the barge with the dead maiden descending the stream. Thomas Hill's large painting of "Donner Lake, California," occupies a prominent place and attracts much attention. Professor Weir's famous "Gun Foundry," and his less known "Confessional," are also fine pictures. George H. Smilie sends "A Lake in the Woods," a pretty composition; and F. A. Bridgeman has a brilliant Moorish scene called "The Story-Teller." Albert Bierstadt exhibits six pictures of Western and Pacific coast scenery. One of these is a "View of Yosemite Valley from Glacier Point Trail;" another, a glimpse of "Mount Hood;" and a third, "Spring in California." His "Settlement of California" attracts much attention. W. L. Sontag has a beautiful "Sunset in the Wilderness," and C. Schussele, a Philadelphia artist, a striking painting of "Solomon and the Iron Worker." F. D. Briscoe, another Philadelphia artist, has a spirited water scene representing "A Breezy Day off Dieppe." The late Charles L. Elliott is represented by two fine portraits, one of Edwin Forrest, the other of General Bouck. Harry Fenn sends "The Old Convent Gate" and the "Old Fire-Place," executed in his best style. Winslow Homer's "Snap the Whip" shows that artist's best qualities as well as his faults. Henry Innman has a portrait of Hackett in the character of Rip Van Winkle. D. T. Kendrick, of Boston, sends "A Foggy Day at the Beach." Page is

represented by his well-known "Farragut Entering Mobile Bay," a large and stirring work. T. B. Thorpe has a landscape called "Westward the Course of Empire Takes Its Way." Louis C. Tiffany sends several Oriental scenes, among them "A Guard at Prison Gate, Tangier." Jerome Thompson's "Old Oaken Bucket" is here. It is well known by the excellent chromo which had such a large sale a few years ago.

There are several of Washington Allston's paintings in the collection, but the only one which shows him at his best is "Spalatro's Vision of the Bloody Hand." Rembrandt Peale is represented by one of his portraits of Washington. Among the portraits are Commodores Perry and McDonough, by Jarvis; General Jackson, by Waldo; Commodore Decatur, by Sully; General Meade, by Thomas Hicks; Washington, by Charles Wilson Peale, the elder of the two painters of that name; Washington, by Colonel John Trumbull; John Adams, Thomas Boylston and Mrs. Boylston, by J. S. Copley; John Jay, Fisher Ames and Judge Story, by Gilbert Stuart.

These, as has been said, are but a few of the most prominent of the American pictures; and the list of necessity omits many that are deserving of notice.

England.

The English collection of pictures is placed entirely in Memorial Hall, and occupies two rooms and the northwest corridor lying between them. It is in every respect the best and the most judiciously arranged collection in the Exhibition. No such exhibition of English art has ever been made before in any foreign country. It is a better display than was made by England at Paris in 1867, or at Vienna in 1873.

The main room is devoted to the modern painters of England, and is well filled with their finest works. Here are Sir John Gilbert's "First Prince of Wales" and "Battle of Naseby," in his best style. Frederick Leighton, whose work is as poetic as it is artistic in the highest sense, has three of the finest paintings in the hall: "Summer Moon," "The Court of a Jew's House at Damascus" and "An Eastern Slinger Scaring

Birds from a Field in the Harvest Time." Alma Tadema has five pictures in the collection, two of which are water-colors. These are "An Egyptian Mummy of the Roman Period," "The Sick Girl," "The Vintage Festival," "The Connoisseur" and "The Story of a Good Wife." The last two are water-colors. It is impossible to write of these pictures here as they deserve. We can only mention their presence in the collection, and invite the reader's attention to them.

Among the portraits is a fine one of Lady Marianne Alford, by R. Buckner; one of George H. Boughton, by John Pettie; Mistress Dorothy, by George A. Story; Betty, by Luke Fildes; a curious portrait of himself, by Holman Hunt; and portraits of Leighton and Millois, by Watts.

William Frith Powell's famous "Railway Station," embodying the arrest of one of the most notorious English forgers at the moment of the departure of the continental train, occupies a prominent position and receives the praise it deserves. Edward Armitage sends his "Julian the Apostate Listening to the Disputes of the Sectaries." Luke Fildes has a powerful London scene, entitled, "Applicants Seeking Admission to the Casual Ward of the Workhouse." The north wall has two "Studies of Lions," by Landseer, and "The Marriage of Griselda," by Charles West Cope. At the east end of the room is a full-length portrait of Washington, by Gilbert Stuart. George H. Boughton has a scene of the olden time, called "God Speed the Pilgrims on their Way." Millois sends a charming study of a child. H. Moore and John Brett send each a noble, but different, seashore view, and Colin Hunter has another, called "Trawlers Coming Ashore," three pictures which have no equals of their kind in the Exhibition.

The corridor between the two English rooms is largely devoted to water-colors. One of the best of these is an "Interior of the Sistine Chapel," by H. M. Knowles. Another is A. P. Newton's "Left by the Tide." Sir John Gilbert has a water-color of "Francis I. and his Court Visiting the Workshop of Benvenuto Cellini." Louis Haghe has a fine work representing "The Tepidarium of the Baths of Pompeii." "The

Night Watch" (the artist's name is not given), is also a fine work.

The upper end of this corridor continues the collection of oil paintings. The most notable are E. Croft's "Battle of Ligny" and "The Convent Ferry," by Arthur Hughes.

The northwest gallery contains a notable collection, many of them by deceased painters. Here are Maclise's "Banquet Scene in Macbeth," one of his largest works; Mulready's "Village Buffoon," loaned by the Royal Academy; portraits of the "First Three Partners of the House of Baring," by Sir Thomas Lawrence; the large painting of "The Marriage of the Prince of Wales," by William Powell Frith, loaned by Queen Victoria; "The Marriage of the Young Princess," by the late J. Northcote, also loaned by the queen; Benjamin West's "Death of Wolfe," also the property of her Majesty; Gainborough's "Portrait of the Duchess of Richmond;" West's "Christ Blessing Little Children;" Landseer's portrait of the first Lord Ashburton; "Dolbadden Castle," a genuine Turner, loaned by the Royal Academy; Barry's "Adam and Eve;" and "Landscapes," by Creswick, Calcott and Stanfield.

The other rooms north of the British corridor are devoted to an exhibit of the course of industrial art taught at the South Kensington Museum. The exhibit consists of copies of famous art works, and the designs and drawings of the pupils of the school.

France.

The French section occupies several galleries in Memorial Hall and in the annex. But few of the leading artists of France are represented, and the collection contains none of her great names in art. The best picture in the collection is Carolus Duran's large portrait of his sister-in-law, Mlle. Croixette, of the Theatre Français. The lady is seated on her horse, which stands on the sands of the sea-shore with the last ripple of the waves breaking about his feet. The lady is exceedingly pretty, and the horse is perfect.

Among the notable pictures of this collection are, "Rizpath Protecting the Bodies of her Sons," by George Becker, a power-

ful work, and the largest in the collection ; "The First Step in Crime," by Jean Pierre Antigua ; "A Conspiracy under Catharine de Medicis," by Louis Adan ; a large "Death of Cæsar," by Felix Clement ; "Haddon Hall, Derbyshire," and "A Call on Uncle Cardinal," both by Joseph Castiglione ; the "Story of Ruth," by Paul de Curzon ; "Saint Antonio, Patron of the Mariners of Porto d'Angio, Italy," by Henri Dubouchet ; "Napoleon I. with Goethe and Wieland," by Eugene Hillemacher ; a "Fellah Woman," by Charles Landelle ; "The Indiscreet," by Armand Leleux ; the "Morvan King," by Evariste Leminais ; "The Rest," by Leon Perault ; "Morning on the Lagune of Venice," and "Sunset at Sea," both by Amedee Rosier ; "Heath Flowers," and "Snow Flowers," by Auguste Schenck ; an exquisite "Leda and the Swan," by Jules Saintin ; "The Gitana's Dance in Grenada," by Benjamin Ulmann ; "Boulogne-Sur-Mer," by Alexandre Veron ; and "Josephine, in 1814," by Hector Viger. The portrait of "Bielle, the Flower-Girl of the Paris Jockey Club," by Pierre Glaize, and "Cassandre," by Leon Commere—the latter in the annex—are two splendid specimens of flesh-painting.

The main gallery in Memorial Hall contains a number of exquisite tapestries from the national manufactories of the Gobelins at Paris, and at Beauvais.

Germany.

The German exhibit is confined chiefly to Memorial Hall, and occupies the southeast gallery, opposite the French section. In the corridor leading to the principal hall are a number of German paintings, the principal of which are, "A Courtyard in Venice," by Henry Jaeckel ; "The Mahmondi Canal, at Cairo," by E. Korner ; "Portrait of Pauline Lucca," by O. Begas ; "Mt. Vesuvius," by R. Heck ; "Trust with Care," by R. Deutsch.

Upon entering the German gallery, the first object that attracts the visitor is the large equestrian portrait of the Crown-Prince William Henry. The horse and rider appear to have just emerged from the line of fire in the battle that is raging behind them, and both are full of the excitement of the fight.

The picture is by C. Steffek, and is much admired, as it richly deserves to be.

There are two pictures of the "Surrender of Sedan," on the 2d of September, 1870. One of these, and the more powerful picture of the two, is by Louis Braun; the other by Count Harras, who was himself present at the memorable scene, and who has another fine painting in the gallery—the "Arrest of Luther on his Return from the Diet at Worms." Julius Schrader, an artist whose fame is not confined to Germany, has a fine representation of "Elizabeth Signing the Death Warrant of Mary of Scotland;" and a companion to this is the "Lady Jane Grey Confuting Bishop Gardiner," a striking picture, by Tolingsby. R. Heck sends a beautiful view of a "Natural Arch at Capri;" and Q. Beckel's "Before the Christening," and "After the Christening," are delightful in their sweet simplicity. A. Sewartz has a much admired painting called "Brown Flowers," and F. Boser one entitled "Early Trials," before which visitors linger long. The "Evening Scene in the Zoological Gardens at Berlin," by Herdert, is an exceedingly careful and life-like picture. Ferdinand Meyer's "After the Church Festival," is not only an admirable painting full of keen humor, but conveys a sound moral. Meyer, of Bremen, has a capital picture, "The Village Gossips," close by, and Achenbach, one of Germany's best marine painters, exhibits "Flushing in a Storm." Xylander's "Moonlight at Sea" is much admired, and Jordon's "Old Pilot," is admirable in its way. Louis Horst sends a fine portrait of the Emperor William, and Gustave Richter, one of George Bancroft. "The Flight of Frederick V. from Prague, after the Battle of the White Mountain," by Faber du Tour, is one of the best pictures in the gallery. The scene is one of the greatest confusion, and is admirably depicted. H. Brücke exhibits a large "Discovery of America by Columbus," which is warmly praised.

In one of the small rooms of the northeast quarter of the building, is one of the finest of the German pictures—Wagner's masterpiece—"Scene in the Circus Maximus at Rome, A. D. 88." It is well-known in this country, and is exhibited by Goupil & Co., of Paris.

Austria.

The Austrian collection occupies the eastern gallery, and comprises 163 paintings, etchings and statues. It is very good as a rule, and contains many pictures which are worthy of careful study.

The gem of the whole collection is John Makart's "Venice Paying Homage to Catharine Cornaro." The picture is 35 feet long and 14 feet high. On the death of her husband, Don Jacopo II. Lusignano, King of Cyprus, she made a free gift of that kingdom to the Republic of Venice, under whose tutelage she had been brought up as "figlia di San Marco." Upon her return to Venice she was greeted with the reception which this picture commemorates. The canvas contains a large number of portraits of persons well-known in Vienna.

Ernest Lafitte has two exquisite pictures, a "Girl of Upper Austria," and "Peasant Woman of Upper Austria." John Canon, of Vienna, exhibits "A Page," and a "Girl with Fruit," which are so much like Rembrandt's work that many experienced judges have pronounced them his, and have almost refused to believe them modern. Frederick Freidlander exhibits his "Tasting the Wine," one of his best works. G. A. Kuntz exhibits "In the Cell," a picture of a nun with her head leaning on her folded hands gazing out of the window of her cell. The expression on the nun's face is marvellous. The picture is also remarkable for the reason that Kuntz until four years ago was a distinguished sculptor, and had done nothing with his brush. Aloysius Schönn sends a "Siesta of an Oriental Woman," a work noted for its warmth of coloring. The Countess of Nemes-Ransonnet, one of the most accomplished lady artists of Austria, sends her own portrait and a view of the "Interior of St. Stephen's at Vienna," which receive, as they deserve, great praise. Maria Von Parmentier, another lady artist, exhibits several charming Tyrolese scenes. Of these, the best is the "Mill in the Tyrol." F. Rumpler's "Smiling Girl" and "The Two Female Friends" are charming works, and are much admired. Charles Leopold Müller, one of the greatest of living Austrian artists, has only

two small works here which do not fairly show his merits, but which are among the gems of the collection. These are "In the English Garden, at Palermo," and "Monte Pellegrino, near Palermo." Adolphus Obermüllner exhibits three fine paintings—"Welcome Sounds," "The Lake of Constance at the Beginning of a Storm," and "The Grum-Alp, with the Paluglacier." The first of these represents the meeting of two sledge parties belonging to the Austro-Hungarian Arctic Expedition of 1872-'74. F. Russ exhibits "A Girl with a Cat," and "Life in a Castle of the Middle Ages," both admirable. "Sans Souci," a study of Italian Lazzaroni, by F. Fux, is a capital scene; and Chas. Probst's "Head of a Young Lady" is a charming study. Robert Russ exhibits the "Mill at Mals, in South Tyrol;" Augustus George Mayer, a "Bathsheba;" A. Schæffer, a desolate beach scene, called "At the Sea;" L. Munsch, a view of the "Alp Gschlöss towards the Gross-Venediger;" Rosa Schweninger a "Neapolitan;" Eugene Felix, "Pan and Bacchantes;" Lewis Mayer, "The Judgment of Paris;" Ralph Ribarz, an "Ox Team;" Remi Van Haanen, a "View of a Dutch Town in Moonlight;" and Gustavus Wertheimer, "The Moor and his Horse," all of which are excellent. A number of fine water-colors are included in the collection.

In the collection of statuary, the notable works are a bust of the Emperor of Austria, by C. Zumbusch, loaned by his Majesty; and busts of Maximilian I. and Charles V., by C. Costenoble, all in marble. F. Pezzicar has a colossal bronze statue of "The Freed Slave," about which crowds gather daily in admiration. The negro exultantly displays Abraham Lincoln's Proclamation of Emancipation, and his chains lie broken at his feet.

Italy.

The entrance or reception hall of the principal Art Gallery is the only room in Memorial Hall occupied by Italy, with the exception of the rooms in the northeast section of the building, which contain the Castellani Collections of Classic and Mediæval Antiquities. These are the property of Signor Alessandro Castellani, of Rome, and consist mainly of ancient marbles, bronzes,

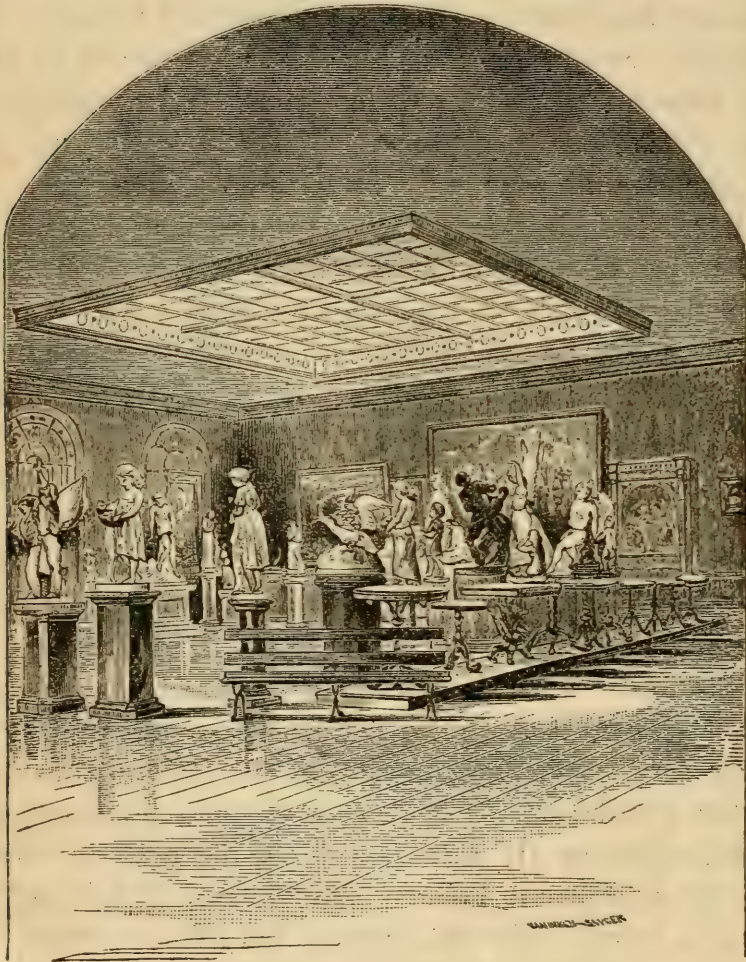
Italian majolica, gold work, and personal ornaments. The collections are unique in many respects, and are among the richest and most valuable in the world. Our limits do not allow a description or even complete list of the treasures here exhibited. They comprise seventeen portrait busts and heads in marble from the Greek mythology; twelve of the exceedingly rare bronze dressing-cases of the Etruscan ladies, of which there are but one hundred now in existence; a large and valuable collection of old porcelain and majolica ware, the glory of which is a case of superb Gubbio ware; and many gold ornaments and gems of Phœnician, Etruscan and Greek workmanship. Some of the gems are unequalled by anything in modern art.

In the vestibule at the northern entrance to Memorial Hall, are a number of superb pictures in mosaic from Rome, the finest display of the kind in the entire Exhibition.

Italy occupies six galleries in the annex to Memorial Hall, and in these displays a large collection of paintings and sculpture. The busts and statues number three hundred, and among them are some of the best works of some of the most famous sculptors of Rome, Florence, Milan, and Bologna. It is believed that this is the largest collection of sculpture ever displayed at any Exhibition. We can only point out a few of the most prominent works.

First in order must be mentioned the productions of the renowned Florentine sculptor, E. Caroni, professor at the Fine Arts Academy at Florence, and one of the Italian Commissioners to the Exhibition. His "Africaine" is a masterpiece, the lineaments showing all the workings of the betrayed woman's mind. Of a different type is his "Love's Telegram," representing a young lady who, during the siege of Paris, being unable to communicate with her lover by ordinary means, is in the act of despatching a carrier pigeon with the amorous missive. Then comes "Love bursting forth from the Egg," a charming piece of fancy. Next, "Christmas Day," bearing a capon in one hand and good wishes in the other. Then an exquisite allegory, "Butterfly Youth," which, flying from one of life's pleasures to another, at last remains entangled in the

net of disappointment. In representing children Professor Caroni has been eminently successful; his "Recreations of a School Girl" is as gay as his "Cold" is pathetic—in the latter the tripod containing the charcoal has upset and the shivering child, hiding her hands under her frock, looks the very essence of chilly despair. So also the "Impressions of Cold Water"



ITALIAN STATUARY IN THE ANNEX TO THE ART GALLERY.

portray the little bather's mingled feelings of curiosity and timidity, while the "First Capture" shows the intense delight of the boy at having caught the little sparrow in his hand. Professor Romanetti's "Franklin and his Whistle" and "Washington and his Hatchet" will attract general attention, as will also Zocchi's "Infancy of Benjamin Franklin," where the youth-

ful compositor is setting up his first types. Professor P. Guarnerio, of Milan, whose "Washington" in the Memorial Hall is already familiar to thousands of visitors, has in the Art Gallery a fine design of "Raphael in his Youth," and his "Girl Bathing" is full of power. Signor D. Baroaglio, of Milan, who has already won for himself fame among young Italy's sculptors, has a colossal piece, "Flying Time." Heedless of the attempts of Youth, who would detain him, Father Time hurries on; the parchment scroll of History in his right, the sharp scythe in his left hand, and forces reluctant Youth on after him. Not less successful has the sculptor been in his "Blowing Bubbles," "Butterfly" and "First Call," all of which are full of expression. Signor Renato Peduzzi, of Milan, has shown great originality in his "Berenice," the inscription on which statue tells its own tale, "Venus, to thee and other gods I sacrifice these tresses, shouldst thou return to me from war my spouse." Signor Peduzzi's work will not readily be forgotten by any who have seen it. The distinguished artist, Cavaliere Cantalamessa Popatti, whose sculpture is almost as well known in America as it is in Italy, and who is one of his country's commissioners, has on this occasion two charming statuettes, "Sunshine" and "Storm," as also "Love's Morn," all of which are worthy of the sculptor's reputation. Signor Torelli, of Florence, exhibits "Eva St. Clair," from "Uncle Tom's Cabin," "Shy Girl," and a sweet "Little Housekeeper," who, with her broom, is sweeping out of the house envy, hypocrisy, pride, vanity, and calumny. Professor Ropi, of Milan, has a fine bust of Garibaldi, and has been equally happy in his "Hope."

The Italian sculptors have naturally, on this occasion, brought out the connecting link between Italy and the discovery of our continent, and such productions as D'Amore's "Night of October 11, 1492," and Zocchi's "Columbus Scanning the Chart," speak eloquently for themselves. F. Barzaghi, of Milan, has a number of productions which strikingly denote the artist's genius. "Phryne before her Judges," "Sylvia Looking at Herself in the Fountain," "The Finding of Moses," and "Blind Man's Buff" will all engage the spectator's atten-

tion, as will also the same sculptor's "First Friend," representing a Scotch terrier playing with a lovely child. A little gem of the same character is R. Pereda's "Joy;" the beaming countenance of the child in this case will be generally pronounced perfect. This Milanese artist's productions are all alike chaste and graceful. In the "Rete d'Amore" the girl willingly allows herself to be entangled in the network of love, and draws the net around her heart. The same sculptor's "Motherless Children," "Childish Grief," and "Little Smoker" are all telling and true. E. Braga, of Milan, has a "Bacchus" and "Child's Plaything," both noteworthy, and few will pass by C. Corti's "Lucifer," from "Paradise Lost," without admiration. Zocchi's "Michel Angelo's Chisel in Hand" is a grandly-conceived work, and not less so is Pazzi's "Episode from the Divine Comedy." We have scarcely space even to mention Romanelli's "Madonna of St. Luke's Bologna," Barcaglia's "Love Blinds," Antonio Bottinelli's "Vanity," Argenti's "Sleep of the Innocent," Motelli's "Unwelcome Interruption," Bergonzoli's "Angel of Love," and Sperlini's "Confidence." C. Pandiani has some finely executed works; his "Moses Trampling on the Crown" and "Love" will attract the observer, as will also C. Pagani's "Psyche." Not entirely unnoticed must we pass over the "David," a copy in miniature of Michel Angelo's masterpiece; the "Angelica," from Tasso's "Freed Jerusalem," or the admirably portrayed "Ruth the Gleaner." A. Malfatti's "Disappointment" and "Emancipation," the latter in plaster of Paris, will attract considerable attention. Besides Professor Guarnerio's great works above mentioned, he has also a number of other productions, among them being "The Forced Prayer," where the sulky little fellow is represented with life-like accuracy; "Vanity," "The Rebuke," and the "Last Day of Pompeii." What especially characterizes this remarkable exhibition of sculpture is the close attention that has evidently been given to anatomical study; every detail is true to nature, and there is nothing out of harmony with its surroundings.

The windows of the south hall of the annex contain a handsome display of stained glass of American manufacture.

Among the paintings in the Italian section are a number of good copies of the great works of the Italian masters. Conspicuous among these is a copy of Raffaele's "Galileo before the Inquisition."

The originals are good as a rule. Gilli, of Turin, has a fine representation of the famous scene between "Arnold of Brescia and Pope Adrian IV.," in which the pontiff sentenced the great preacher to death. Fumigalli has a fine picture of "Columbus in Chains," and Marchesi an admirable "Interior of the Sacristy of Milan." "A View of the Bay of Naples and Mount Vesuvius," by Smargiassi, and the "Head of a Lady," by Romagnoli, are admirable works.

Spain.

The Spanish collection occupies one side of the western gallery of Memorial Hall. It is small, but contains some good pictures. The best modern work in the collection is "The Burial of St. Lorenzo," painted at Rome, by Alejo Vera, in 1862. It is a noble picture, and shows well among the older masters. There is a fine "Christ on the Cross," by Murillo, which of course attracts much attention. Two large paintings of "The Landing of Columbus," by A. Gisbert and D. Puebla, and one of "Columbus Demonstrating his Theory to the Monks of La Rabida," by E. Gano, occupy conspicuous places. P. Gonzalvo has a fine "Interior of the Cathedral of Saragossa," and A. Domingo exhibits a spirited picture entitled "A Duel."

Sweden.

The Swedish collection occupies the eastern wall of the west gallery of Memorial Hall, facing that of Spain, and a gallery in the annex. It is the first opportunity the people of this country have had to become familiar with Swedish art, and the collection therefore attracts much attention. The most prominent painting is Hockert's "Burning of the Royal Palace at Stockholm." This catastrophe occurred when Charles XII.

was a mere youth, and the young hero forms the principal figure in the spirited scene.

Baron Otto Hermelin, the Swedish Commissioner in charge of the Art Department, has several of his pictures in the collection. These are "Winter Day in the Neighborhood of Stockholm;" "Poor People's Burying Ground, near Stockholm;" "The First Snow;" "Fishing Harbor, near Stockholm;" "On Montmartre, Paris," and "Autumn Day at Djugorden." Another noble artist, Baron G. Cederstroem, exhibits a clever painting called "Dark Moments." Miss A. Lindegren's "Girl with an Orange" is much admired. "Sigurd Ring, King of Scandinavia and Engl," by Severin Nilsson, is a stirring scene from the legends of the Vikings. M. E. Winge has two pictures drawn from the same source, "Ligne Burning herself on Seeing her Lover Hanged" and "The Viking Fleet." B. Nordenburg has two good pictures of every day life, "A Wedding in a Swedish Country Church" and the "Killed Sheep." August Jernberg's "Market Day in Dusseldorf" is a careful and excellent work. He has also another fine picture, "Visitors in the Museum of Amsterdam Regarding Rembrandt's Night Watch."

Norway.

The Norwegian collection is divided between a small room in the southwestern corner of the principal building, the windows of which are filled with American stained glass, and a gallery in the annex.

Professor Hans Gude has here a fine picture called "A Fresh Breeze on the Norwegian Coast," and a "Calm in Christianafjord." "Hardengerfjord," by P. Thurman, is also a notable picture.

The collection in the annex is larger and better than that in Memorial Hall. The most notable picture is "A Scene in the Romsdalsfjord," by A. Norman.

The Netherlands.

Holland occupies three galleries in the annex, and makes an

admirable display of the works of her artists. They are marked by the same care that characterizes everything attempted by the people of the Low countries, and it may be safely asserted that this collection is as rich in excellent paintings as that of any nation represented in the Exhibition.

First we notice four large copies, by S. Altmann, of Amsterdam. These are "The Banquet of the Civic Guard, after Van der Hleest;" "The Five Masters of the Drapers, after Rembrandt;" "The Masters of the Klovenier's Guild at Harlem, after Frans Hals;" and "The Young Bull, after Paul Potter."

Among the originals the following are admirable, though the list does not include all the good pictures of this collection: "The Church of Trier," by J. Bosboom; "At Church," by C. Bisschop; "The Cat Feigns to be Hanged," by B. H. Gempt; "Four Weeks after St. John's Day," by J. D. Huybers; "Landscape on the Mediterranean Coast," J. Hilverdink; "A Moment of Expectation," by Gerke Henks; "Still Water near Dordecht," and "View on the Yo in Amsterdam," by E. Koster; "A Conference," by L. Lingeman; "Evening on the Beach," by H. W. Mesdag; "A View of Amsterdam in the Sixteenth Century," by J. A. Rust; "A Cheese Market in a Town of North Holland," by C. Rochussen; "The Deacons of the Silversmiths' Guild Conferring a Freeman's Certificate," by J. A. B. Stroebe; "Gleaning," by P. Sadeé; "A Barber Shop in Cairo," by W. de Famars Testas; and "Domestic Happiness," by H. Valkenberg.

Belgium.

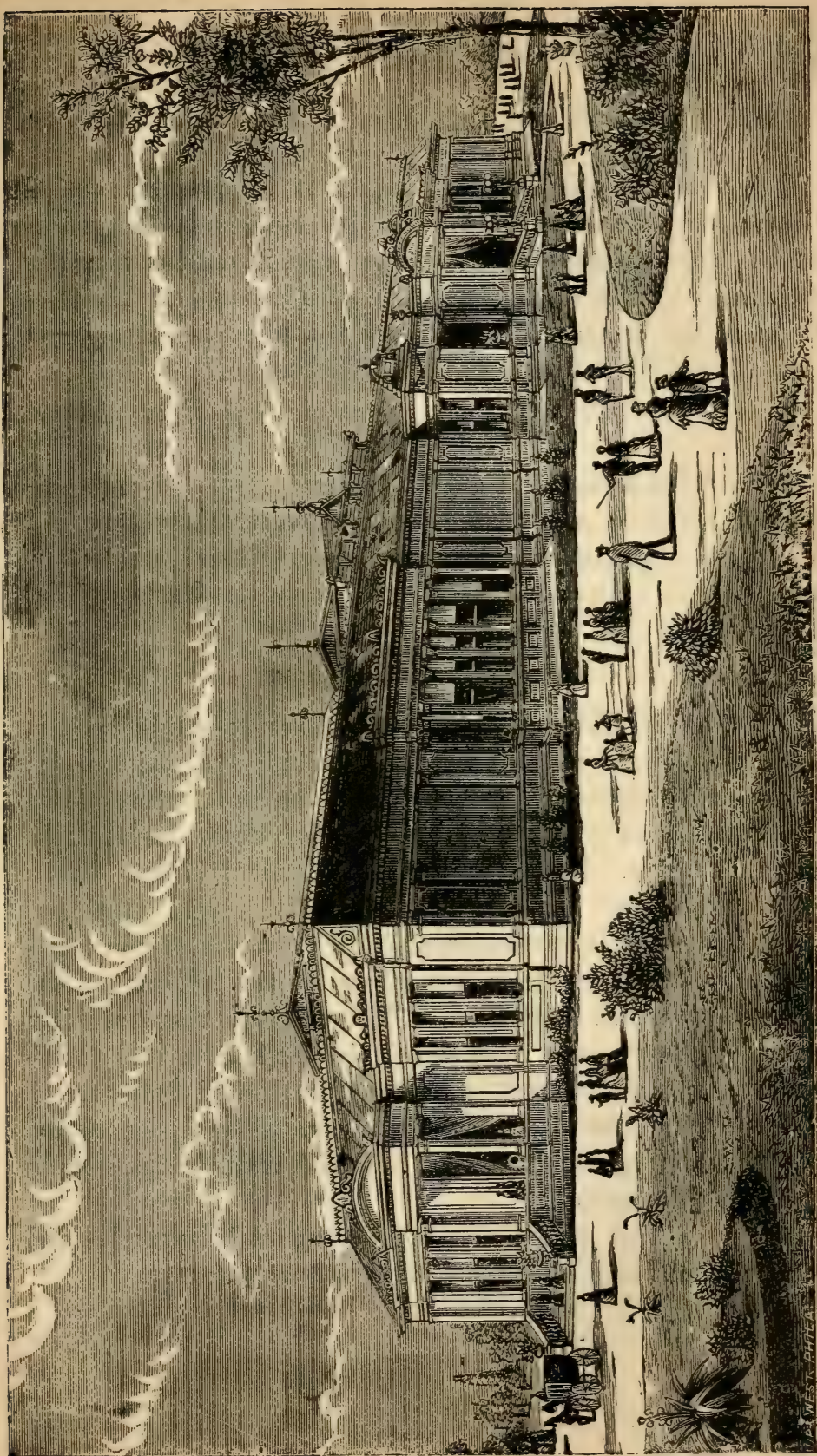
The Belgian art exhibit in Memorial Hall is established in a little room on the east of the north entrance, and consists of statuary, bronzes and figures in earth and plaster. The most conspicuous of these is a life-size group in marble of "A Mother and her First Child," by Charles Fraikin. There is also a fine display of Faience ware.

The Belgian paintings occupy three galleries in the annex. The most prominent are "Autumn on the Meuse," by A. Assel-

berg; "Arias Montanus Visiting the Printing Office of Plontyn at Antwerp," by Joseph Bellemans; "Rome, from the Tiber near the Quay of Ripetta," by Francis Bossuet; "Grève, Coast of Brittany," by A. Bouvier; "The Church of St. Fermo at Verona," and "The Gate of Wertheim in the Grand Duchy of Baden," by Jacques Carabain; "Dante and the Young Girls of Florence," by N. De Keyser; "The Sentinel at the Gate of the Harem," by George de St. Cyr, a pupil of Portaels; "The O'd Hermitage of St. Hubert at Namur," by George Génisson; "Sunday at the Convent," by Franz Meerts; "A Woman of the Roman Campagna," and "A Young Girl of the Vicinity of Rome," by Xavier Mellery; "View of Saxenhausen," and the "Dome of the Invalides," by Robert Mols; "Scene in Rotterdam," by François Musin; "Burning of Ruhla, near Eisenach, in Thuringia," by Ferdinand Pauwels; "The Deception," by Jean Portaels, one of the most eminent artists of Belgium; "Interior of Hindeloopen," by Peter Sebes; "A Christian Martyr under Diocletian," by Ernest Slingmeyer; "War" and "Rodelta," by Eugene Smits; "The Bad St. Martin," by Charles Soubre; "The Cave of Diomedes, an Episode of the Destruction of Pompeii," by Joseph Stallaert; "View of Dordrecht, from the Meuse," and "The House of the Confraternity of Archers," by Francis Stroobant; "The Rhine, between Bonn and Coblenz," and "Posilipo, near Naples," by F. R. Unterberger; "Desdemona," by Jules Van Kiersbillek; "After the Rain," and "Morning," by Joseph Van Luppen; "The Confederates before Margaret of Parma," and "A Flemish Woman of the Sixteenth Century," by Professor Franz Vinck; and "The Hotel de Ville at Alost," by Gustave Walckiers.

Denmark.

The Danish collection is small, and shares a gallery with Norway in the annex. The principal works are "The Discovery of Greenland in A. D. 1000," and "Two Greenland Pilots," by J. E. C. Rasmussen; and "A Midsummer Night under Iceland's Rough Weather," by Wilhelm Melby.



PHOTOGRAPHIC ART GALLERY.

Brazil.

The Brazilian exhibit is not large. It is located in one of the eastern galleries of the annex. Its most important works are the large paintings representing scenes in the late war with Paraguay. These are "The Battle of Humaita;" "The Defence of the Island of Cabrito by the Brazilian Army and Navy;" and "The Naval Battle of Riachuello."

Mexico.

Mexico has a part of a gallery in the annex. Its most important paintings are "The Valley of Mexico," by Jose Ma Valesquez; "Brother Bartholomew de las Casas" and "Galileo," by Felix Pavia; and "Donna Isabel of Portugal," by Pelegrin Clavé.

The Photographic Annex.

The space in Memorial Hall and the annex being taken up, a third building was erected for the exhibition of photographs. It is of wood, stuccoed, and is situated on the Avenue of the Republic, east of Memorial Hall and north of the Main Exhibition Building. It contains a large collection of fine photographs from the United States, Great Britain, Germany, Austria, France, Italy, Russia, Canada, Denmark, Sweden and Mexico. Many of these are views of the scenery of the countries to which they belong. The collection may not fairly represent the progress made by foreign nations in the photographic art, but such as it is, it shows the United States far in advance of all the competing countries. A specialty of the American display is the series of splendid views of the scenery of the Pacific coast.

A large exhibit is also made of photographic apparatus and material, and magic lanterns of the better class.

CHAPTER XVII.

THE UNITED STATES GOVERNMENT BUILDING.

Description of the Building—The Grounds—Exhibits of the Various Departments Outside of the Building—The Monitor Turret—The Great Guns of the Army and Navy—The Postal Cars—The Transit of Venus Exhibit—Army Trains—Disposition of Space in the Hall—Exhibit of the Post-Office Department—A Model Post-Office—The Agricultural Department—A Fine Display—The Interior Department—Exhibit of the Patent Office—Historical Relics—A Rich Display of Indian Curiosities—The Educational Exhibit—The Census—Photographs of the Geological Survey of the Territories—A Magnificent Display by the Smithsonian Institution—The Animals and Fishes of the United States—The Mineral Collection—The Treasury Exhibit—The Light-House and Coast Survey Branches—The Navy Department—A Splendid and Complete Display of the Construction and Equipment of an American Man-of-War—The Torpedo Service—The War Department—Splendid Exhibit of the Signal Service—The Engineer Corps and its Work—Making Rifles and Cartridges by Machinery—The Post Hospital—The Laboratory—The Light-House.

NEXT in size and importance to the five Exhibition buildings already described is the edifice erected and controlled by the general government of the United States.

It is located on Belmont avenue, north of Machinery Hall, from which it is separated by the lake. It is constructed in the form of a cross, with offices built in the concavities of the angles. The main stem of the cross, or nave of the building, is four hundred and eighty feet long, and the arms, or transept, three hundred and forty feet long. This is clear of the entrance, which will protrude ten feet farther on each end. The building rises to a height of two stories in the main portions of the cross, the upper story having for its sides long rows of windows which act as skylights for the building. Spans run clear across the edifice, supporting the roof with the

aid of rows of columns built along the main aisle. The whole design, while very strong, has the appearance of lightness, no heavy work being visible anywhere. In the middle of the building, in the centre of the angles of the cross, is a dome surmounted by a small cupola, and this again by a flag-staff. The dome is octagonal in shape, and lighted all around with windows. Around it on the offices mentioned, as in the angles, are four smaller domes of similar design. The building is placed on a terrace above the surrounding grounds.

The outside is handsomely painted, the prevailing tints being brown and wood-color. The lower portion, or main body of the structure, has a stripe of red at the top; beneath this are the windows, which are continuous all around. Then comes a broad band of wood-color, with a neat yellow figure placed at intervals in it; next a band of dark red, and then the lower band plain. The dome is of wood-color, and these, with the black composition roof, give a subdued but pleasing effect at a distance. The prevailing color inside is wood-color, all the lower part being so; but it is relieved by small red bands, interspersed with neat geometrical figures. The ceilings of both the building and dome are painted a dark blue. The main feature, however, consists of the sides of the building, which are divided into panels, and these again are subdivided into diamond shape. Each panel covers much space, and in the centre of each of its diamonds or lozenges is painted the emblem of the department of the government there represented. The Agricultural Bureau has a plow, with stalks of corn and wheat around it; the Interior Department has a bow and arrows, surmounted by a tomahawk; the Smithsonian Institute, the skull of an animal, encircled with a wreath; the Army, by the lictors' rods and axe; the Navy, an anchor and cable; the Treasury, a shield, with scales, and beneath a key; and the Post-Office, the wings of Mercury, a telegraph pole and a letter. The fisheries are recognized by a writhing fish impaled with a trident. These designs are innumerable and are very pretty.

The main entrance is quite handsome. It rises to a peak, and has an immense window and circular top. Columns stand

on each side, resting on large pedestals. In the columns are panels, and on these, in relief, is a group of standards crossed over a drum, on each side of which are cannon balls. The doors of the main entrance stand out from the building, and are fifteen feet high. This edifice is designed for the exhibition of the resources of the United States as a war-power and its internal resources in time of peace.

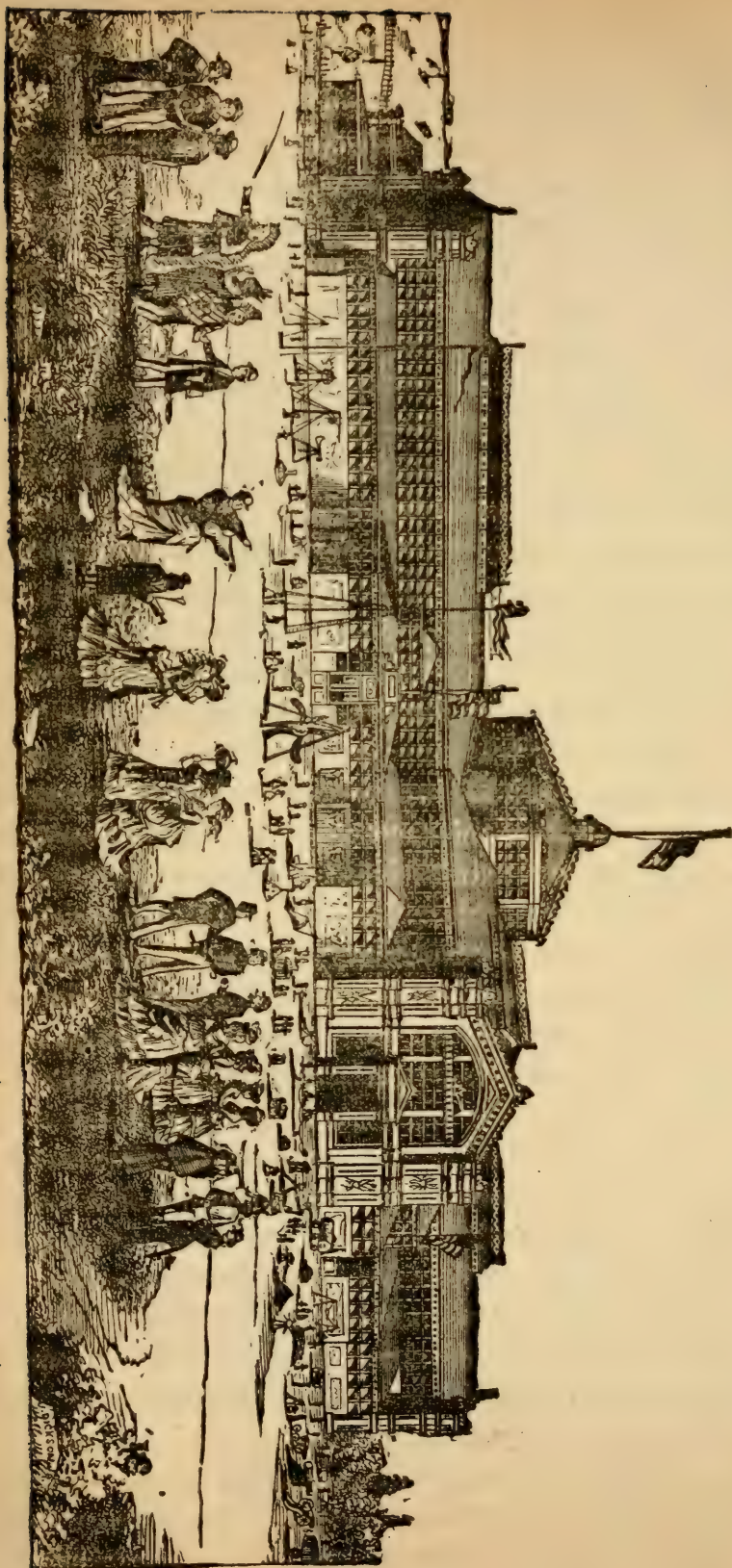
The grounds around the building are handsomely laid off. The space immediately adjoining the edifice is occupied with a display of heavy ordnance and other objects too large for exhibition within the building.

On the east side of the building is a sample monitor turret, such as is used in the iron-clad monitors of the United States navy. It is constructed of wood, and is a clever imitation of iron. It contains two formidable fifteen-inch guns, and is provided with every detail necessary to the showing of its practical workings. The turret is exhibited by the Navy Department, which also displays a formidable battery of ship and boat guns of all sizes and patterns, of brass and iron. Each one is mounted and equipped as when in active service, and is accompanied with a number of specimens of the shot and shell used with it. These guns occupy the space to the south of the building. Here also the Navy Department exhibits the boat "Faith," which was used by the first Grinnel Arctic Expedition under Lieutenant De Haven, and the second Grinnel Expedition under Dr. E. K. Kane. This was one of the three boats in which Kane in 1858, upon abandoning the "Advance," pushed with the survivors and stores of the expedition eighty miles over ice to the open sea, and thence nearly one thousand miles to Disco. It was brought home by Captain Hartsene, United States navy.

Here also is the boat made out of the wreck of the "Polaris," in which a part of her crew escaped in June, 1872, and in which they were picked up by the Scotch whaler "Ravenscraig," after their long and perilous voyage in it.

Near the southeastern corner of the building the Post-Office Department exhibits two postal-cars, one of the style used by the New York Central, the other the car used by the Pennsyl-

UNITED STATES GOVERNMENT BUILDING.



vania Railroad. These show the style of car used by the great trunk roads of the Union for the fast mail service, and illustrate the entire method of assorting, receiving and delivering the mails while the train is in motion. The cars rest upon a section of railroad track laid in the most careful manner and heavily ballasted with stone. This is a special exhibit made by the Pennsylvania Railroad, and is designed as a specimen of its own track and to show what a well-built road should be.

To the westward of the postal-cars the Navy Department exhibits the frame buildings and instruments used by the American expedition in the observation of the transit of Venus, December 8-9, 1874.

On the north side of the building the engineer section of the War Department makes an interesting exhibit of a bridge train, with pontoons, wagons, etc., and a large display of army wagons is made by the quartermaster's branch of the service. On the east side of the building the War Department exhibits its heavy ordnance. Here are a huge ten-inch Woodbridge rifle gun, which uses a charge of seventy pounds of powder with a four hundred pound ball, and a twelve-inch Thompson rifle, weighing 84,280 pounds, firing a six hundred pound shot, for which one hundred and twenty pounds of powder are used. The latter is a breach-loader, and one of the most interesting guns in the Exhibition. Close by is a thirteen-inch sea-coast mortar, which uses a two hundred pound shell. A Sutcliffe rifle breach-loading gun is also shown. It uses a two hundred and thirty pound shot and forty-five pounds of powder. The most formidable gun in the collection is the twenty-inch Rodman, which is a muzzle-loader, and fires a one thousand and eighty pound ball, with a charge of two hundred pounds of powder.

At the northeast corner of the building are two vertical engines which supply the motive power for the machinery within the hall.

The cost of the building and of the display of the articles it contains was provided for by an appropriation by Congress on the 3d of March, 1875. The amount appropriated was \$505,000, and it was expressly provided that not more than

\$150,000 should be expended in the construction of the building. The actual cost of the edifice was \$110,000. The floor space is divided among the various departments as follows:

To the War Department.....	11,200
To the Navy Department.....	10,400
To the Interior Department.....	20,600
To the Treasury Department.....	3,000
To the Post-Office Department.....	3,800
To the Smithsonian Institution, including the Fish Commission...	26,600
To the Agricultural Department.....	6,000
Total.....	81,600

The main body of the building and its transept are traversed centrally by walks, which cross in the centre under the rotunda, or lantern, crossing the intersection. The principal arm of the cross consists of three aisles, which have side-lights beneath the eaves, the central aisle rising above the side aisles and having ventilators at the comb. The transept has but a single aisle.

Entering the building we find it one of the handsomest and most attractive of the great halls of the Exhibition. It is tastefully painted, as has been said, and is gayly decorated with flags and streamers, draped and festooned overhead.

The Post-Office Department.

Commencing our tour of exploration at the south door, we give our attention first to the Post-Office Department, which occupies a portion of the southeastern section of the building. It lies east of the transept, but does not reach quite to the nave of the building.

The principal portion is taken up with the *Post-office of the Centennial Exhibition*. It is constructed of black walnut and plate glass, and is fitted up in the handsomest style. All letters for the army of exhibitors and employés engaged within the grounds are received and delivered from this office. There is a system of lock-boxes, a general delivery and a carrier's department, each of which is designed as a specimen of this branch of the service. Money orders, both domestic and foreign, are issued and paid here, and there is also a depart-

ment of registered letters. The office is a branch of the Philadelphia Post-Office, and is in charge of Postmaster Fairman and a special force of clerks. The government has provided a special stamped envelope, which may be purchased here, as a souvenir of the Exhibition, and which is good for postage all over the Union.

The railway mail service is shown by the postal cars without the building, to which we have alluded, and by small models inside the building.

The *Topographical Division* exhibits a series of splendid railway and general postal route maps, and maps showing the location of the money order offices.

The *Division of Books and Blanks* exhibits specimens of all the books, blanks, etc., letter scales, marking and rating stamps used by the department.

The *Mail Equipment Division* exhibits leather pouches for letter mails, canvas bags for printed and miscellaneous matter; also registered letter mail bags, mail locks of the pattern now in use, and those which were formerly used but have been thrown aside by the department.

From the *Stamps, Stamped Envelope and Postal Card Division* we have a complete exhibit of all the stamps, stamped envelopes and postal cards ever used by the department, and specimens of registered letter envelopes and post-office official envelopes now in use. Here also is a machine in operation which cuts, folds, stamps, gums and counts stamped envelopes, taking the paper in rolls and turning it out in packs of completed and stamped envelopes; and another engaged in the manufacture of postal cards.

Around the walls of the space occupied by the Post-Office Department are hung portraits of the postmasters-general of the various periods of our history; and in a glass case is exhibited the ledger used by Benjamin Franklin while postmaster-general of the North American colonies.

The Agricultural Department.

The exhibit of the Agricultural Department is large and

exhaustive, and is made mainly in handsome glass show-cases of large size.

The *Statistical Division* exhibits large outline maps of the United States, showing forest areas; the extent and value of farming lands, and amount of production, by counties; charts and diagrams showing the amount of special products, by sections, and statistics of farm animals, and other matters relating to the agricultural industries of the country. These maps are divided into spaces of different sizes and colors, which are arranged and numbered with reference to a carefully adjusted schedule printed in one corner of each map.

The *Chemical Division* exhibits specimens of soils arranged in the order "of their geological formation, comprising marls, calcareous earths, green sand and phosphatic marls. Then come phosphatic rocks, animal and vegetable fertilizers, and a combination of the three in a manufactured state. The next feature, the utilization of vegetable products, is illustrated by means of specimens, beginning with the product in its natural state and proceeding through the various stages of manufacture to the finished article. It comprises the manufacture of flour, meal and starch from cereals; of sugar from cane, beet-root, maple and sorghum, and exhibits models of the machinery used in the manufacture of these. The fermentation is shown of starchy substances from which beer, ale and porter are made, and also the distillation of whiskey. A model still and plans of notable American distilleries are exhibited. Then are seen the fermentation and distillation of sugar, molasses and fruits, resulting in a complete set of samples of American wines, these in turn being distilled and converted into brandy. Following up the systematically arranged display, the visitor witnesses the preservation of fruits and vegetables by hermetically sealing in glass or tin, packing in sugar and syrup, or desiccation; the manufacture, with the assistance of leaves, barks, herbs and roots, of concentrated extracts from hemlock or oak; the manufacture of dye-stuffs; the distillation of dry wood by heating in closed retorts, free from air; the manufacture of pyroligneous acids, acetate of lead and other acetates used as mordants in the

process of dyeing; the manufacture of linen, cotton and woollen goods, paper, tobacco and snuff; of vegetable oils, and from these in turn of fancy soap, and also of the eighteen different essential oils that comprise the whole number manufactured in this country. Then follow an illustration of the manufacture of butter and cheese; a specimen of phosphate rock from South Carolina, weighing 1150 pounds, and a display of *materia medica*, separated either in the crystalline form, the oil or the resin from the active proximate principle."

The *Botanical Division* is perhaps the richest and most complete in the department. The display of the wood growth of the country is exhaustive. At the foot of the cases stand many hundred sections of logs, overhead in the case being specimens of the foliage of their respective trees. Next to Horticultural Hall and grounds this spot affords the botanist the greatest delight which the Centennial can give him. From the sub-tropical growth of the Gulf and Southwestern States up to the hardy coniferæ of Maine and the Northwest there is not a tree of importance which is not here represented. The patience of the curious is sorely taxed in counting the rings of old stagers that had reached the hey-day of their growth two hundred years before Columbus first saw Guanahani, and of some that had doubtless sheltered weary aborigines while Louis of France was battling for the cross in Palestine. Most of these interesting specimens were obtained from the Sierra Nevada mountains, in California. The principal of those of which accurate statistics can be given are as follows: one of a sugar pine, 175 feet high and 27 feet in circumference at the base, and 588 years old, the section having been made at a diameter of 7 feet 2 inches; one of a soft, white pine, 130 feet high, 25 feet in circumference at the base, and 510 years old, the section having been made at a diameter of 6 feet 6 inches, and one of a red silver fir, 162 feet high, 30 feet in diameter at the base, tapering for 100 feet before the first branch was reached, and 392 years old. All these grew on the Sierra Nevada. There is also one of a twisted pine from the Rocky mountains, 123 feet high, 22 feet in diameter at the base, and 297 years old. A curious exhibit

for most folk in the Middle States is that of the many varieties of native oak and the remarkable want of resemblance among them in regard to foliage, the tan-bark oak of California, for instance, having velvety, willow-shaped leaves, while those of the black-jack oak of the Southern Atlantic States are bell-shaped. In the grain of the wood, also, the same wide divergency exists. While the cañon live oak of the Southwest has a smooth bark and fine grain, the post oak of this region is rugged both in bark and grain.

The *Microscopical Division* exhibits a series of water-color drawings representing the family of cryptogamia, with magnified spores, showing the several stages of the various diseases to which they are subject; also preparations illustrating the characteristics of poisonous and edible mushrooms common to the United States; illustrations displaying the varied character of the starch granules of plants; drawings and illustrations explaining the method of distinguishing vegetable and animal fibres, their kind and quality; drawings displaying vegetable and animal cellulose and starches, and illustrating methods of detecting them in organizations.

The *Entomological Division* contains collections of models of the fruits and vegetables of the United States; stuffed specimens of birds, beneficial and injurious to farmers and orchardists; stuffed specimens of the various types of poultry of this country; a collection of the grains and cereals of the Union; a collection of the textile fabrics of the United States, with specimens of their manufacture; specimens of tobacco from different tobacco-producing sections of the United States; and a mounted collection of beneficial and injurious insects.

The *Horticultural Division* exhibits specimens of economic and utilizable plants, showing methods of growth, culture, etc., grapes, cotton, tobacco, flax, broom corn, jute, corn, sorghum, yucca fibres, etc.

The Interior Department.

The exhibit of the Interior Department occupies the southwest section of the building, and is large and interesting. The most of the articles are shown in glass cases.

The Patent Office.—The display made by this, the oldest and best known branch of the Interior Department, is large and exceedingly interesting. First of all are shown the publications of the office, consisting of the annual reports, official gazette; index to patents, general and yearly; volumes of patents, monthly and weekly; decisions of the Commissioner of Patents; mechanical dictionary; and official classification.

A selected series of 60,000 drawings of models, and a selected series of 5000 models, all carefully chosen from the vast collections of the Patent Office, are shown to serve in illustration of the work of the office. They embrace the following classes: agriculture, harvesters, mills and presses, architecture, civil engineering, railways, navigation, metallurgy, metal-working, wood-working, steam, hydraulics, pneumatics, mechanical movements, hoisting, horse-powers, journals and bearings, vehicles, fire-arms, textile, printing and stationery, stone, clay, glass, leather, light, heat, electricity, household, chemistry, gas, ice, and fine arts. Extending over so wide a range, these models afford a fair showing of the ingenuity and success of our country in the inventive arts, and furnish food for months of study. The exhibit is admirably classified, and if a man wants to find a model of a certain stove, he has only to look in the division of heat; if he wants to find a certain reaper, he will find it in the division of agriculture; and so on throughout the list.

The National Museum makes a deeply interesting exhibit of a case filled with relics of the illustrious Father of his Country. They consist of the camp equipage and other articles used by General Washington during the Revolution. They are just as he left them at the close of the war, and were given to the general government for safe-keeping after his death. Here are the tents which constituted the head-quarters in the field of the great soldier. Every cord, every button, and tent-pin is in its place, for he was careful of little things. His blankets, the bed-curtain worked for him by his wife, and his window-curtain, are all in an excellent state of preservation. The chairs are in perfect order, not a round being broken; and the little square mirror in his dressing-case is not even cracked. The washstand and

table are also well kept. His knife-case is filled with plain, horn-handle knives and forks, which were deemed "good enough for him;" and his mess chest is a curiosity. It is a plain wooden trunk covered with leather, with a common lock, the hasp of which is broken. It is divided by thin partitions of wood into the necessary compartments, which are filled with bottles still stained with the liquids they once held, tin plates, common knives and forks, and other articles pertaining to such an establishment. His cooking utensils, bellows, andirons, and money chest, all of which went with him from Boston to Yorktown, are in this case. Here also hangs the suit of clothes worn by him upon the occasion of his resignation of his commission at Annapolis, in 1783, and here is the commission which he gave back to Congress, when he had completed his great work. A hall lantern and several articles from Mount Vernon, a "travelling secretary," Washington's sword and cane, and a surveyor's compass, presented by him to Captain Samuel Duvall, the surveyor of Frederick county, Maryland, are in the same case.

This collection includes also the coat worn by Andrew Jackson at the battle of New Orleans, and the war-saddle of the Baron de Kalb; a bayonet used by one of Braddock's soldiers, and found upon the fatal field of the Monongahela; panels of the state coach of President Washington; two splendidly ornamented muskets presented to President Jefferson by the Emperor of Morocco; a copy of the medal awarded by Congress to the captors of Major Andre; a number of splendid sabres presented to officials of the United States navy by Ali Pacha and other eastern sovereigns; and a model of an invention for lifting steamboats over the sand-bars of western rivers, designed by Abraham Lincoln in 1849. Had Mr. Lincoln, then an obscure Western lawyer, succeeded with this invention, it would have made him independently wealthy. It failed, however, and twelve years later he became President of the United States. During the interval, the model lay forgotten in the Patent Office; but after his inauguration, President Lincoln got one of the employés of the office to find it for him. After his assassination it was placed in the case containing the Washington relics.

The Pension Office exhibits its annual reports, and the statistics of its operations, together with some collections of historical interest relating to the war of the Revolution.

The General Land Office exhibits its annual reports, volumes of the laws of Congress relating to the public lands, digests of the decisions of the Commissioner, and other documents. It displays also maps, charts, and atlas of surveys, miscellaneous collections, and instruments and processes employed in the land survey.

The Indian Office makes the largest and most interesting exhibit in this section of the building. It embraces the reports and other publications of the office, maps of the Indian Reservations, photographs and paintings of the Indians, their mode of life, habits, etc., costumes of males and females, weapons of war, models of wigwams, tents, canoes, domestic utensils, and specimens of the arts and manufactures of the tribes. Captain Jack, Split Oak, Dull Hatchet, Clumsy Moccasin and other famous or obscure Indian braves are here in all the glory of life-size papier-maché and stuffing, streaked on the face with red paint, and wearing the head-dress of feathers.

Some of them appear to take pains in displaying their necklaces of grizzly bears' claws, others their belts full of dangling scalps, and still a third number deerskin tunics and breeches, and a lavish decoration of bead and shell work. Sheet Lightning prides in a remarkable set of ear-drops which, if somewhat decreased in avoirdupois, would make first-rate car-couplings or thunder-bolts; and Iron Breast gazes grimly from behind a beaded sash of many colors that girds a puny trunk, à l'Empereur, from shoulder to waist on the opposite side. The squaws of the Californian braves stand patient-looking and ready to hew down trees or turn up an acre or two of wild land with a rude spade-shaped piece of rock, while the lords and masters squat away in the huts, effecting a chemical change in tobacco. These copper-hued matrons, and also the unmarried belles, win the admiration of the warriors with necklaces of dried grass, aprons of braided grass, and short gowns of milk-weed fibre, some of the matrons adding to their embellishments the pappoose basket.

The little, puckered-mouthed, pug-nosed Esquimaux, with his slight sprinkling of a moustache and "goat," is also exhibited. Arm-in-arm with him, and still more diminutive than himself, is his wife. Both are dressed in the white bear-skin garment, which is hood and coat combined. With the exception of their faces there is between every portion of their bodies and the outside air a thickness of several inches of non-conducting substance, and it will be wonderful if they can stand a Philadelphia Fourth of July. Proceeding along the passages bounded on both sides by glass show-cases the visitor sees in the latter vessels of plaited willow, resembling baskets, but having the interstices filled with cement, so as to hold water, arrow-heads varying in size from the bulk of a three-cent silver piece to half that of a man's hand, made of copper, sand-stone, flint, iron, or stones of pretty colors, and bows and arrows of sizes differing to suit all, from the little, naked, prospective warrior, who is made to practise against a target, up to the veteran over the door of whose tent hang the scalps of four-score pale faces.

There is no lack of baskets and cradles of willow, in which kicked and squalled many a hard-knocked pappoose. The medicine man's rattle is also shown. With this magic apparatus the red-skinned physician rattles the demon of sickness or that raw head and bloody bones, known as the "blues" (a thing the red man often gets), out of patient and out of camp. It sometimes happens, however, that the rattle proves inefficacious, but this signifies that the patient is loathsome in the eyes of the Great Spirit, and not that the medicine man is a hoax.

Passing by the innumerable wooden mush-sticks, iron war-knives, wooden war-clubs and stone spear-heads, the visitor comes to a model of a portion of an ancient cave ruin on the Rio de Chelly, in Arizona; also a model of an ancient cave town on the same river, and near the same place as the former. These models are in natural tints, and the crumbling walls seen within the spacious cave are not yet so far gone as to prevent one from observing the stamp of a prehistoric and high civilization. The cliff ruin, on the Rio Mancos, Colorado, is also represented by a model, and belongs to the same school as the preceding. There

is, besides, a collection of broken pottery, arrow and spear-heads, fancy articles of bone, inlaid with shell, and other specimens—all taken from these ruins. Then comes a long array of articles of bone-smoothing tools, wedges, perforators, harpoon heads, fifes and whistles. The objects of stone are innumerable, and comprise pestles and mortars; a Mexican calendar, which is a circular object, about a foot in diameter, marked with concentric circles enclosing strange symbols, and used by the Aztecs pretty much as a Yankee uses his almanac; grooved axes, hammer stones, leaf-shaped implements, digging tools, hatchet stones, chisels, gouges, adzes, scraper-like and spade-like implements, net-sinkers, grind-stones, etc. Articles made of copper or shells are equally numerous. Tobacco pipes of stone or clay, and in the shape of dogs, cats, buffaloes, rattlesnakes, fairies or hobgoblins, fill several cases. There are fiendish-looking little household gods made of bone, inlaid with shell, manufactured by Alaskan Indians, and knives, spoons, forks, etc., excellently carved from bone by the Nushergak Indians of that territory and by the Innuit Esquimaux. A curious feature is a reduced copy of a colossal carving at Fort Simpson, B. C., representing the body and outspread wings of a bird with the head of a dog. The Indian tradition is that this was the sacred bird which brought over their ancestors from Asia. Copies of the sacred bird are found in various forms all through Alaska. Having passed through all these and the great number of dishes and trays of carved wood, those executed by the Indians of Sitka island being of especial merit, the visitor enters into an examination of the methods pursued in and the work accomplished by the Indian schools, which is deeply interesting.

In the nave between the sections of the Interior Department and the Smithsonian Institute is an immense canoe dug out of a single log of wood by the Indians of Vancouver's island. It is sixty feet in length, with a breadth of beam of eight feet.

Here, also, are two large "totem posts," from the Pacific coast. These posts are common among the Indian tribes of that region. To the uninformed, these "totem posts" look like

rude idols of wood, reared in front of, and towering high above the houses of the natives, but in reality they are nothing but a sort of illustrated pedigree or family tree, or more simply, "name posts." The Indian, when he takes a name for himself from some real or supposed feature in his character, such as "The Dove," "The Shark," is accustomed to tattoo the rude figure of the animal suggested by his name upon his arm or breast. The northwest coast Indians still further illustrate their names and family history by erecting in front of their houses tall posts of cedar, cut into combinations of human and animal forms. Each of these representations illustrates a generation in the pedigree of the owner. These posts are not worshipped, though they are supposed by the Indians to exercise a protecting influence over their houses.

The Education Office is in charge of its Commissioner, General John Eaton. It makes an interesting exhibit of models of country and town school-houses of the past and present times, and college buildings; specimens of school furniture and apparatus; a collection of school text books, showing the progress made in these works from those used at the opening of the century to those in use to-day; catalogues of colleges, schools, and charitable and benevolent institutions; statistics of education in the United States; the reports and publications of the office; and a number of other matters of interest connected with the progress and present condition of the educational systems of this and other countries.

The Census Office exhibits a complete set of the Decennial censuses of the United States from 1790 to 1870, with the "Statistical Atlas of 1870."

The Geological and Geographical Survey of the Territories is shown by the reports and bulletins of the various expeditions, topographical and geographical atlases, wall maps and charts, panoramic photographs, paintings, etc. The windows in this section of the hall are filled with photographs of the scenery and geological formations of the vast region between the Rocky and Sierra Nevada mountains. The geological formation of noted peaks, plateaux, and valleys of this region is shown by

means of topographical plaster work, variously colored, the colors being numbered with reference to an explanatory schedule. There are also models of the present condition of the ancient cliff habitations of the aboriginal inhabitants of Arizona and New Mexico and models of the same restored.

The Smithsonian Institution and Commission on American Food Fishes.

The exhibit of the Smithsonian Institution is full of interest to the ordinary sight-seer, as well as to the scholar. The publications of the institution, its contribution to general knowledge, and its method of exchange with foreign institutions are shown.

Then follows an exhibit of the *Collection to Illustrate the Animal Resources of the United States*. This is very complete, and is in charge of Mr. G. Browne Goode. The exhibit is divided into four sections. The first section includes North American animals which are directly beneficial or injurious to man. The species which supply food, clothing, shelter, implements, materials, or amusement, are classed as useful, while those which endanger the life or personal comfort of man, or destroy those animals or plants which are of direct benefit to him, are considered injurious. The most prominent group in this section is a collection of pennepedia, such as fur-seals, sea-lions, hair-seals, hood-seals, sea-elephants, and walrus.

There are two specimens of stuffed walrus exhibited, one from the North Atlantic and the other from the North Pacific. The last mentioned is one of the most striking objects in the collection, as it is fully fifteen feet in length and possessed of hard, strong horns, almost two feet long. Its fur is of a soft dark brown, which contrasts strangely with its ferocious appearance. A harp seal exhibited near is equally ugly, while the monster sea-lion stands with lionine head and body erect, looking for all the world like some king of the forest suddenly turned into a lion-mermaid or merman. The fur-seals are all beautiful creatures, gracefully proportioned and clothed with the soft, rich, brown fur which gives them so great a commercial value. Near

this collection is a group of fissipedia, such as bears, wolves, foxes, etc. These animals are classified as both useful and injurious to man, some of them being valuable as food, others for their fur, ivory, etc., while they are injurious as being the enemies either of man or domestic animals. In this group a magnificent specimen of the grizzly bear is shown, and also large polar bears.

A few steps further on is an entirely different group, composed of representative species of the ungulata. There are among these two musk oxen from Arctic America, both much resembling the American bison in general appearance, but having the horns gracefully curved downwards instead of upwards. A pretty prong-horn antelope from the Yellowstone river stands near these ferocious looking animals, and immediately behind it is a rare specimen of the American elk. This animal stands over five feet ten inches high, while its head towers almost two feet above its body. The antlers stretch far above both, and in spite of their seeming weight and angular lines give the animal an air of grace and lightness combined with strength. Two very homely Rocky mountain goats are seen near this noble animal, and the contrast is not complimentary to the goats, whose blunted features, grizzly beards, and awkward forms are thus brought out in unpleasantly bold relief.

The Rocky mountain sheep exhibited is a much more comely animal, its large, heavy horns having a sickle shape, which lessens the effect of their length and weight. A mule-deer from Central America is not a particularly interesting animal, but near it is a beautiful specimen of the woodland caribou, captured in Maine; it is of a lovely fawn color, and has long sinewy limbs, denoting both strength and fleetness. Another caribou, from the northeastern part of the continent, attracts much attention by its tremendous antlers, which seem entirely out of proportion. Several Virginia deer and two large bison are also exhibited, and not far from them is a peccary, which, except in size, much resembles the wild boar of England. There is no exhibit of birds, reptiles, or insects, although the

uses of many of them are shown in another portion of the department.

In addition to a full display of water and land animals there are also exhibited the various means employed in their pursuit and capture by hunters, trappers, and fishermen of North America, aboriginal and civilized. This collection may be regarded as a monograph of all matters relating to the chase and the fisheries of the country. In its arrangement the principles of zoological classification have been closely followed, each distinct form being considered as a species, and the specific forms divided into genera, families, and orders, according to the general balance of the affinities. Thus, barbed instruments are placed with hooked instruments, while plain spears and lances are grouped with knives and clubs, in order to preserve the idea of their manner of use. The weapons in the first group consists of instruments used for striking, such as salmon clubs, used by the Indians of the northwest coast, fishing clubs, and hunting clubs of various kinds. Among these are the stone-headed and tooth and bone-pointed clubs, and clubs armed with metal points, all of which have been used by the aborigines. Then there is a large collection of hunting-dirks, daggers, hunting-knives, scalp-knives, blubber-knives, boarding, bowie, flaying, splitting, breeding and sheath-knives. Among the group of axes are tomahawks, hatchets, boat-hatchets, cleavers and whale spades.

There is a large display of fishing and whale lances, hunting spears, and prodding awls used in the piercing of the brain in killing fish for the table. In the second division are the grasping instruments, or those by which the power of the fingers is extended. These are classified with scoops, which include clam-shovels, trowels used in taking burrowing shore animals, hand-dredges used in collecting mollusks, pile-scrapers, etc.; hooked instruments, such as gaff-hooks, jigs, grappling irons, lip-hooks or grapnels (used by whalers and oyster-rakers). Among the barbed instruments are harpoons, spears of various kinds, lily-irons, and dolphin-irons. There is also a large display of oyster and coral tongs, jerk-snares, lariats, and lassos,

and bird-slings used by the Esquimaux. There are likewise dredge-tangles used by English collectors. In the group of missiles are exhibited weight and dead-falls, the throw-sticks used by the Moqui Indians, of New Mexico, in hunting rabbits; boomerangs, slings, and spears, thrown by straps; spears, with throwing-sticks, used by the Esquimaux; bows and arrows, cross-bows, air-guns, water-guns, etc. All these implements are very curious, and while many of them are familiar to all, many more are now rarely seen, even on exhibition, and never seen in use.

The collection of firearms is equally interesting, as it includes guns and pistols from the most primitive form known to hunters to the beautiful rifles and revolvers of the present. The display begins with a number of muzzle-loading arms with smooth bores, muskets, fowling-pieces, cane-guns, and so on upward through various kinds of rifles and rifle-carbines to breech-loading arms. In the latter group are revolving carbines, pistols, revolvers, whaling-guns and harpoon guns. The various kinds of ammunition used are shown in the same department, and include shot, explosive bullets, shells, wadding, shot and powder measure, and cartridges. Even the accessories of loading, cleaning, repairing, sighting, and testing firearms of all kinds used in hunting are also shown in the same department.

In another group are arranged angling tackle of all kinds, set tackle, angling apparatus, and nets of every conceivable shape and size, from the rabbit nets used by the Indians of the Southwest to the largest seines. Among the traps are pocket-traps, pit-falls, turkey-traps, the old-fashioned figure four rabbit-traps, snares, springers, automatic dead falls, spring-guns, etc. The various kinds of apparatus used for wholesale destruction, such as poisons, asphyxiators, torpedoes, etc., are all represented in another group, and it is in fact difficult to conceive how such an exhibition could be made more complete.

This section also includes an exhibit of the means of utilizing the various animals for food, and for the uses of commerce and manufacture, and of preserving them for scientific use.

The Collection to Illustrate the Fishery Resources of the United States is exhibited in connection with the display of the Smithsonian Institution, and is partly covered by the collection just described. It is very large and valuable, as it embraces photographs or plaster casts of almost all the fishes found in the lakes, rivers, streams, bays, and coasts of North America. The exhibit includes in the *pedeculati* sea-bats or devil-fish, goose-fish used for bait, mouse-fish, etc.; and, in the next genera, sun, rabbit, porcupine, swell, box, trunk, cow, file, and trigger-fish. From the porcupine-fish helmets are made, while oils used in medicine are obtained from the sun-fish. The sea-horse, pipe-fish, snipe, and trumpet-fish and sticklebacks are next exhibited, and near them are species of the teleocephali, such as soles, flounders, flat-fish, turbot, halibut, cod, pollock, haddock, hake, ling, cusk, turbot, rockling, lance, etc. In the next group are casts of the wolf-fish, blenny, toad-fish, sea-snail, goby, sea-robin, gwinard, sculpin, sea-raven, Norway haddock or hemdurgun, redfish, rock-cod, from the western coast; black-fish or tautog, cunner or hogset, parrot-fish, from the Pacific. There is also in this collection some fine samples of the sturgeon, anglo, sword, bayonet, and scabbard-fish; several casts of chaetodous mackerel, cero, tunny, bonito, pompano, pilot-fish, and dolphin.

The more common inhabitants of our waters, such as bass, porgies, perch, blue-fish, etc., are all represented by casts taken from excellent specimens. Several fine casts of the gar-fish and flying-fish attract much attention, and near them is a group of *haplomi*, such as blind-fish, pike, pickerel, etc. Among the more interesting specimens are casts of the clumaira or king of the herrings, skates, devil-fish, and sharks. These enemies of man and fishes possess many interesting peculiarities which can be studied at leisure and in safety at the Government Building, and are, of course, objects of no little curiosity.

All the apparatus used in the capture of these animals is exhibited in another part of the building, and this display includes angling tackle of all kinds, from the delicate fly to the shark gear, set tackle, such as surface, floating trowl, and bottom set lines, together with all the parts and accessories of angling

apparatus and of harpoon and seine lines. Among these are trout, salmon, cod and halibut hooks, jigs, and the blue-fish drails made of bone and metal of the Newport, Noank, Providence, and Provincetown patterns. Adjoining this is a display of whalers' chains and lines, fluke chains and ropes, head-picks, blocks, pendants, sinkers, seine-floats, reels, gunwale-winches, dredge-line rollers, seine-windlasses, etc.

A most interesting subdivision of this department is a collection of boats used in fishing. These include birch canoes and the whaling canoes used by the Indians of the northwest coast, Kyaks, Umiaks, Indian raft-boats, launches, ancient "dug-outs," scows, oyster-boats, seine boats for lake and sea use, Potomac seine-boats, dorys, sharpnis, dingies, the Italian fishing-boats now used in California, Adirondack, and Alexandria bay boats, and mackerel and oyster smacks. The herring, Mackinaw, Huron, Norwegian, and other boats used in the great lake fisheries are also exhibited by models. Near the western boundary of the section are five cases filled with models of fishing craft used by Indians. These implements are of course rude in construction, and yet they are evidently well adapted for the purposes for which they were intended. On three of these cases are placed specimens of the Atwood shark, a man-eater found in the Atlantic ocean, and the sand-shark and horse-mackerel which inhabit the waters off the eastern coast of America.

In one large, handsome case is exhibited by models the means of pursuit and capture of the whale, and the manner in which it is prepared for market. In the centre of a green, wavy surface, representing the ocean is a beautiful model of a full-rigged whaler, while a little farther off is a whale-boat and a crew in pursuit of their prey. The harpooning or striking the whale is shown by another model, while, in still another, is a boat-crew watching the animal in its "death-flurry." Some of the dangers of whaling are represented by a boat in the jaws of the enraged monster of the deep, while the crew are struggling in the waves. By the side of the ship is a whale just captured, and the manner in which the pieces are drawn on board is shown by a complete reproduction of all the implements and apparatus neces-

sary for the work. The oil is taken from the head in buckets, but the pieces of the back are hauled one at a time on board, and from this flesh oil of a second grade is obtained by boiling. Not far from this is a case of models of fish-ways of all kinds, and workmen are now engaged in arranging the exhibit of hooks, which will complete the display.

The *Collection to Illustrate the Ethnology of the United States* is exhibited conjointly with that of the Indian Bureau of the Interior Department, and is in charge of Dr. Charles Row. It comprises objects of flaked and chipped, and pecked, ground and polished stone, used by the primitive inhabitants of America, such as arrow and spear-heads, perforators and scrapers, cutting and sawing implements, chisels, gouges, axes, hammers, adzes, ceremonial weapons, stone vessels, pipes, tubes, ornaments and sculptures; objects of copper, bone, shell, pottery and terra cotta ware; carvings on wood; skulls; mummies; samples of food, and models, drawings and samples of articles of common use to illustrate the habits, daily life, pastimes, religion and warfare of the ancient Indian tribes.

The *Collection to Illustrate the Mineral Resources of the United States* is in charge of W. P. Blake. The principal objects of this collection of the useful ores and minerals of the country have been to illustrate: 1st. The nature and variety of the mineral resources of the United States; 2d. The geographical distribution and geological associations of the minerals; 3d. The extent to which they have been utilized; 4th. The mechanical, metallurgical and chemical processes by which they are extracted or converted into useful products; 5th. The inherent and comparative qualities of the extractive products. A portion of the collection is arranged according to the nature of the objects, irrespective of locality, but the bulk of the exhibition is grouped geographically by States. There is also a section devoted to models and drawings, and one to geological maps and graphic charts. This collection occupies the northeast portion of the Government Building, upon the right of the main aisle.

The Treasury Department.

The exhibit of the Treasury Department is small, and is located in the north end of the building. It is confined chiefly to the Revenue Departments.

Specimens of all the treasury notes, fractional currency and other bills issued by the government, and notes of various denominations issued by national banks, are displayed by the Bureau of Engraving and Printing.

In a small but handsomely fitted-up court the Supervising Architect of the Treasury exhibits a fine plaster model of the Custom House and Post-office at Nashville, Tennessee, and drawings of the custom houses and post-offices of the principal ports of entry of the Union. Here is a case of all the medals struck at the United States Mint, at Philadelphia, and here are samples of all the revenue stamps used by the Treasury in its various branches. Samples of liquors in barrels, and tobacco in packages are exhibited, in order to show the mode of collecting the revenue upon these articles; and here are samples of the testing apparatuses and scales, and the locks used by the department.

The *Coast Survey Office* exhibits maps and charts of the coast and the various rivers, bays, harbors, etc., of the country, with models of the appliances by which the work of this branch of the public service is carried on.

The *Lighthouse Board* exhibits specimens of the various lights used on our coast, and of the means employed to supply the various light stations both ashore and afloat. Here is a large rotary lantern, one of the most striking objects to be seen within the building. This beautiful piece of workmanship stands over fifteen feet from the floor, and is covered with prisms which gleam like the fabled gems of the Orient. But these pretty pieces of crystal are not placed in the lantern for ornament; every prism has its individual duty to perform in so refracting the rays of light that they will gleam out upon the night, not in diverging and ever-weakening directions, but in parallel lines which retain their brightness for miles. Reflect-

ors are also used, and as these are parabolical in shape the effect is the same; every ray is caught and reflected in a band of light, which preserves its brilliancy for an almost infinite distance. These lanterns therefore utilize every ray of light and send them forth in parallel lines in any direction. The details of these lanterns are so complete that even the few rays which do not pass through the prism are reflected at such angles as to make them parallel with those refracted; so it will be seen that not a single ray or portion of a ray is lost. The effect is, of course, to give forth a gleam which no sailor near a dangerous coast could fail to see, and which, warning him in time, must be often blessed as the halo above the forehead of a guardian angel. These lamps are of six classes, the first for projecting headlands, the second for less prominent points, and the smaller lights for narrow seas, or passages, rivers, etc. The largest lamp now on exhibition is what is known as a revolving or flash-light; it is run by clock-work, which receives its power from a weight suspended in the tower on which it is placed, and only requires winding about once in every five hours. The object of the flash-light is, of course, to indicate the locality on which it is stationed, so that no mariner can possibly be misled by it. The flashes can be made at intervals of from sixty to ten seconds, and as these intervals are understood by pilots, they can at once recognize their bearing and act accordingly. In the three larger lamps lard oil is used, while in the others petroleum has been found most effective, as it gives a more intense light. The experiment of using petroleum in the larger lanterns has been carefully made, but it was found that the increased heat emanating from the argand burners volatilizes the mineral oil so rapidly that the lenses become coated with carbon. With lard oil the illuminating power of these lanterns is equal to that of from 350 to 450 wax candles. In the same department are two range-lights similar in size to those which are being erected on the Delaware. These Delaware towers are so located in relation to each other that a pilot coming up the river at night will need only to so steer his boat as to see but one light; that is, make one light

hide the other, and he will have no difficulty in keeping the channel. These lights are provided with a parabolical reflector, and are, of course, stationary. Among the other lighthouse exhibits are several floating lamps, which can be anchored off of any shoal.

The Navy Department.

The Navy Department occupies the southeast section of the Government Building, and makes a large and attractive display of the workings of its various branches. Its section is tastefully draped with bunting, and from the roof hang the various flags used by the navy from its origin down to the adoption of the stars and stripes, the pennants of the various grades of commodore, admirals' flags, and the various signals in use by the service. The portraits of the secretaries of the navy, from the establishment of the government to the present time, and of the naval heroes of our wars, are hung around the section, and add to the attractiveness and interest of the display.

At the western end of the section, fronting the transept, are two powerful marine engines, one a compound screw engine of 800 horse power; the other a back-acting condensing engine of 500 horse power. Immediately in the rear of these are two compound marine boilers, each eight feet in diameter; and close by are specimens of the cutter engine with vertical boiler. These are exhibited by the *Steam Engineering Branch of the Department*.

The *Ordnance Branch* displays its publications and reports, which hold a high rank among professional men. It exhibits a number of torpedoes, both automatic, stationary and movable. The first torpedo ever used in this country is shown, and the various improvements are exhibited in a progressive manner until perfection is reached in the Ericsson and Lay torpedoes. The Lay is considered the most perfect movable torpedo known. One of these here exhibited is made of wrought-iron plates, has somewhat the shape of two cones joined at their bases, and is about eighteen feet long and two and a half feet in diameter. Its interior is divided into four sections, separated by bulkheads. In the forward section is placed the charge of seventy-

five pounds of dynamite, or three hundred pounds of powder, on the outside of the shell being the concussion fuses. In the second section are vessels of carbonic acid gas, which furnishes the motive power to the engine, the latter operating the helm. The engine is connected by electric wire—a reel of which is in the third section—with the operator on land or shipboard, the electric current opening or closing the throttle-valve, and thus causing the streams of carbonic acid flowing through pipes to have the same effect upon the engine as steam. The after section contains the engine, which guides the infernal machine at the will of the operator. From each end of the torpedo rises a pole four or five feet long, bearing a signal flag, one being red and the other white, so that the operator can the better distinguish a line in sighting. The signals appear just above water, the torpedo floating underneath, and, shark-like, awaiting its prey. It is sometimes sent out as far as three miles from the operator, and can be drawn back at will. The towing torpedo is towed alongside from the foreyard of a vessel, while the spar torpedo is fixed upon a little craft of its own, above water, and upon spars extending out over the bow. The craft is despatched upon its errand after the manner of the Lay.

This branch also exhibits specimens and models of the various guns used in the naval service, and of small arms.

Prominent in the formidable array of heavy guns are the Gatling battery gun, having a crank at the breech and a receiver on top, into which the cartridges are dropped, the gunner turning the crank with his right hand and loading with his left, firing from sixty to eighty shots a minute, and thus grinding out death as though from a coffee-mill; and the terrible, raking Billingham battery, consisting of a horizontal layer of twenty-five guns, which are all fired simultaneously. Near these is an immense area of wall covered with shelving, upon which are specimens of all the varieties of guns used now or ever used by the United States marines; scabbards and swords, modern and ancient, handsome and ludicrously odd; also an almost endless variety of murderous-looking shells, grape-shot, canister and solid round shot—some new, others having been

fired, but retaining perfect shape, and still others cracked, broken in pieces, dented or battered, the lot having doubtless maimed many a goodly ship, made daylight shine through stone walls and carried off many a poor tar's head. Elsewhere there are large and handsome glass cases, containing thousands of models of forts, batteries, ordnance and weapons of all kinds used in naval service, torpedoes and the rigging and machinery of men-of-war. The two most curious features of the section are rusty and half-decayed weapons obtained from sunken war ships, and full uniformed figures representing Jack Tar in all the transformations he has undergone during the last hundred years.

Instruments for inspecting heavy guns and for gauging and inspecting shot and shell are shown; also samples of gun-powder, percussion powder, cartridges, rammers, scrapers, sponges, grenades, war rockets and all the various articles which are used for the armament of a fighting ship, the old and new styles being shown side by side in many cases.

The ordnance branch also exhibits papier-maché figures clad in the dress of the sailors and marines of the navy at the various periods of its history; and a number of interesting and valuable naval relics. In this collection are two small brass guns brought from Spain by Hernando Cortez, and used by him in the conquest of Mexico.

The *Navigation Branch* exhibits navy bunting and navy flags, illustrating the present state of the bunting manufacture in the United States, as shown in the bunting made for the navy and known as "navy bunting," and also the mode of making flags by dyeing in pattern. A machine for testing bunting is also shown.

Here are specimens of logs to be used by hand or steam, with an exhibit of the improvements in Sir William Thomson's Sounding Machine, and the various devices for detaching sinkers and bringing up specimens of bottom, water, etc. An ingenious apparatus for displaying signal-lights at night is also shown, and close by are cases of compasses for various uses, instruments for testing them, adjustable binnacles, sextants,

quadrants and the various apparatus used for determining latitude and longitude.

The *Naval Observatory* exhibits its publications, photographs of astronomical and other objects, and a series of fine chronometers.

The observatory having for some time past been intimately connected with Arctic expeditions, and Rear-Admiral Davis, Superintendent of the Naval Observatory, being engaged in preparing an official narration of the expedition of the "*Polaris*," a design was formed and carried out for a collection of relics of the celebrated Arctic and Antarctic explorers. In a high glass show-case, fourteen feet square, standing near a fine bust of Kane, are shown, on one side, the prismatic compass, transit, sextant and other instruments used by that intrepid navigator near the frigid wilds of Western Greenland; drawings and paintings of Arctic scenery and animal life, executed by himself, and the flag of the "*Advance*," the ship in which he made his second voyage; the three other sides of the case contain relics of the expeditions of Hayes, Hall and Bradford; the flag that Wilkes took on his Antarctic expedition in the ship "*Peacock*," the same flag being taken by Kane, Hayes and Hall also on their Arctic voyages; relics of Sir John Franklin's expedition, including portions of his vessel secured by Captain Hall in his second expedition and brought back by him then, together with relics of Parry's voyage; the journals kept by Hall in his "*Polaris*" expedition, and a fac-simile of the sledge made for Captain Hall by "*Esquimaux Joe*."

The *Hydrographic Office* exhibits the charts, books and other publications issued by it, which are of interest chiefly to professional seamen.

The *Nautical Almanac Office* exhibits its publications, which show the care and skill exercised in the control of this important branch of the service.

The *Yard and Docks Branch* exhibits handsome and carefully prepared plans of the navy-yards at Portsmouth, New Hampshire, Boston, New York, Washington, Norfolk, Pensacola and Mare Island, California. Here are also plans of the

machinery in use at the principal navy-yards, photographs of the buildings, and perfect and elaborately executed models of the dry-docks at the Boston, New York, Norfolk and Mare Island navy-yards.

The *Equipment and Recruiting Branch* exhibits a specimen of Young's Ship Galley, with utensils for cooking for five hundred men; life-boats, lanterns, and the various articles needed for the fitting up of a ship. In this section are coils of hide and Russian hemp ropes and manilla lines of various lengths and thicknesses, some of the hempen cables being nine inches thick; and coils and reels of steel-wire rope, some of which contain as much as one hundred and thirty-five fathoms, the thickness of the rope ranging from three-eighths of an inch to two inches in diameter.

The *Construction and Repair Branch* exhibit against the eastern wall models of the hulls of the "Constitution" and a number of the other famous vessels of the navy, and in the nave fronting the War Department is a full-rigged model of the United States sloop-of-war "Antietam." The model is forty-one feet in length; is perfect from water-line to rail; is fully rigged, with sails, and carries twenty-two broadside guns. Every detail is perfect, and the vessel is one of the most beautiful and attractive pieces of workmanship in the hall. To the south of this model is a transverse section of the same vessel, on a smaller scale, showing the mode of construction of an American man-of-war. A full-rigged model of the old French line-of-battle ship "Dante," of about the year 1600, is close by, and the contrast between it and the model of the "Antietam" shows almost at a glance the improvement that has been made in the construction of vessels of war.

The *Medical and Surgical Branch* makes a complete exhibit of the medicines and hospital stores used in the navy. Here are cases of the surgical instruments supplied in the service; cots and stretchers for the transportation of the wounded in action; beds with woven wire mattress; arrangements for ventilating the holds of ships; a model, one thirty-second part the size of the original, of the "sick bay" of the famous ship "Hart-

ford," which, it will be remembered, was Farragut's flagship during the late civil war. On the south wall of the section are photographs of the naval hospitals of the United States, and of the homes for disabled sailors and marines. A sectional model of the hospital ship "Idaho," showing all three decks, is included in this collection.

The *Pay, Provision and Clothing Branch* exhibits clothing and materials for making the same issued in the navy; a package showing the manner of packing clothing for sea; and specimens of rations and stores of all kinds issued to the men. Here also are specimens of the blanks, books, iron safes and locks used in the Paymaster's department.

The navy appears to excellent advantage here, and shows in a striking manner the thoroughness and excellence which have always distinguished this branch of the public service of our country.

The War Department.

The exhibit of the War Department occupies the northeast section of the building. It is quite large and includes every branch of the military service, the thoroughness and efficiency of which were so well tested during the late civil war.

The *Signal Service* claims our attention at first. The exhibit is in charge of Lieutenant Grugan, and the principal part of it is a signal or weather station fully equipped and in operation, with recording instruments, telegraph wires, a printing press and a full corps of observers. One set of instruments will be in actual service, and other instruments will record changes in the weather, which are wholly artificial, exaggerating their natural action so as to show the principle upon which they work.

"This very important branch of the government service has been, to a very great extent, the creation of General Albert J. Myer, Chief Signal Officer, United States army, who is now familiarly known as 'Old Probabilities,' who, though he does not 'regulate the weather,' does regulate the carrying of umbrellas and overshoes. Indeed, he received the thanks of a

prominent brother officer in charge of the opening ceremonies on the 10th instant for ordering up, under the most discouraging circumstances, the few hours of sunshine which rendered those services so enjoyable.

“General Myer was in command of the Signal Corps during the war, a corps which rendered very important services in communicating information across districts where it would have been impracticable for the United States Military Telegraph Corps to have run its wires. At the close of the war, however, there was little left for this corps to do, the Telegraph Corps was abolished, having only a quasi military status, and General Myer was called upon to organize a system of daily weather reports in connection with his Signal Service Corps. This his studies and tastes admirably fitted him for, and the work was begun.

“Records had long been kept at all the military stations, and much of the ground-work of a correct system had been already prepared. The Smithsonian Institution too had, with limited means and volunteer observers, developed the science of foretelling the weather and tracing the course of storms to a greater extent than any other organized effort had ever done. The weakness of all methods, however, had been in the fact that volunteer observers, though enthusiastic, could not be relied upon; for, to suit their own convenience, or through unintentional neglect, the observations were not made at the proper moment, or were made by unskilled persons.

“General Myer started out with the principle that the observers should be not only qualified but should be under strict military discipline. In this way only could reliable data be obtained. He therefore accepted none but enlisted men for observers, and these were first instructed in their duties before being put into service.

“Observing stations were established at all the important cities in the Union, and at every sea and lake port which was accessible by telegraph. Many other important seaports have since been reached by a coast line of telegraph, built for the purpose by this department. At these stations observations are

made three times in the twenty-four hours, at intervals of eight hours, all being made at the same instant of time. The results of these observations are sent immediately by telegraph, by the operators connected with the signal office, to the office of General Myer, at Washington, and from these data skilled officers make up the 'probabilities' for each locality, which are so universally consulted by the readers of the morning papers before they venture over their thresholds. The predictions and the reports from all the stations are telegraphed to each station. The observers note, first, the state of the barometer; second, the state of the thermometer; third, the humidity of the atmosphere; fourth, the rainfall; fifth, the direction and velocity of the wind. For this purpose each office is provided with a barometer, a thermometer, a wet and dry bulb thermometer, a rain-gauge and an anemometer.

"The display at the Government Building is intended to show a signal station with all these appliances, and with many others which are now in use, or being tested at the office of the Chief Signal Officer. The above-named instruments, as exhibited, are all self-registering, and make a record fuller and more accurate than any made by human observers. They are all of American invention, and are principally by gentlemen connected with the service.

"Lieutenant Gibbon's barograph or self-registering barometer is the usual syphon-shaped mercurial barometer, in the short leg of which an iron float rests upon the column of mercury. The slightest change in the level of the column makes this float rise or fall, and its motion is communicated by a cord running over a pulley to the circuit-breaker of an electro-magnet. The armature of the magnet communicates its motion to a pen which dots the surface of a cylinder moved slowly by clockwork, thus registering the slightest change and the exact moment of its occurrence. The paper with which the surface of the cylinder is covered is ruled to cover a space of fourteen days, and as each paper is removed it is filed away as a permanent record of that period of time. Foreman's barograph is in its leading characteristics like the one above described, and has

also an attachment which automatically prints in figures each change of one-thousandth of an inch.

“Hough’s thermograph is a self-registering thermometer. It consists of a syphon tube, a short leg of which is expanded into a larger tube with a closed end. In this short leg is placed alcohol, which is confined there by a column of mercury in the longer leg, which is open at the top. The thermometer operates by the contraction and expansion of the spirits by cold or heat, raising the column of mercury as the spirits expand, and letting it sink as it contracts. Upon the surface of the mercury is a float, which rises and falls with the column, and by a very delicate apparatus operates a circuit-breaker of an electro-magnetic circuit. This again, as in the case of the barograph, is made to record the changes on a revolving cylinder.

“A marine barograph is constructed much like the one first described, except that the tube containing the mercury is made of iron instead of glass. It has an attachment to hang it up by, which keeps it always in a perpendicular position.

“Eccard’s Evapograph is an instrument for determining the amount of moisture in the atmosphere, and registering the result. This is determined by the rapidity with which water exposed to the atmosphere will evaporate. The instrument is an open cylindrical vessel filled with water, resting upon a delicate scale; as the water evaporates the vessel is lightened and rises, the slightest change being sufficient to operate the circuit-breaker of an electro-magnet, which, as in other instruments, records the changes on the cylinder moved by clock-work. The motion, of course, is always upward, as evaporation continually goes on with greater or less rapidity.

“Gibbon’s electrical rain and snow gauge records, in like manner, the depth of the rain or melted snow which falls in any given time. A receiver is situated on the roof of the building, the area of the upper section of which is a certain number of times as great as the base of the cylinder of the instrument with which it is connected by a tube. Upon the water in the lower cylinder is a float, which, as it rises, communicates its motion

by an electro-magnet to the recording apparatus as before described.

“Eccard’s rain-gauge dispenses with the electro-magnet, the float communicating its motion by a counterpoise to the clock-work. This is a very simple and effective instrument.

“Gibbon’s Anemograph measures and records the velocity and direction of the wind. Upon the roof of the observing station four hemispherical cups, placed vertically on horizontal arms, catch the slightest movement of the air and cause the arms to revolve. A certain number of revolutions, equalling in the distance travelled one mile of distance travelled by the wind, closes an electric circuit, and an electro-magnet records the same on a revolving cylinder. This cylinder, moving by clock-work, should there be no movement of the magnet, will cause the pencil to make a long, straight line ; with a high wind the record is frequently made, and the line is broken up into longer or shorter sections, corresponding with the velocity of the wind. The direction is indicated on another cylinder. There are four magnetic circuits connecting with the four points at the weather-vane, corresponding with the four points of the compass. Once in four minutes the clock-work makes a record, and that record is made by the pen of whichever circuit the weather-vane has at the time closed. Eccard’s Anemograph dispenses with the electric circuit, and makes its record on the cylinder by entirely mechanical means. The weather-vane in turning revolves the rod to which it is attached, which communicates its motion directly, or by gearing, to the pen, without the intervention of an electro-magnet.

“The above-described instruments are thought to be the most reliable of any invented, and are in every respect the most simple in construction. The anemograph, or wind instrument, is perfectly satisfactory ; and Eccard’s barograph, or self-registering barometer, is the most perfect and simple of any yet invented. The limited appropriations made to the department make it impossible to introduce these wonderful and almost intelligent instruments into all the offices. The only recording instrument used in all offices is the simplest form of anemo-

graph, which notes the velocity of the wind. The barometers, thermometers, rain gauges and humidity thermometer are all read by the eye of the observer at stated times, with the possible liability to errors either of the eye or hand, and the entire lack of a record of the time intervening between the observations.

"The publication branch of the office is also equipped and in operation in this display. Each morning a chart is printed showing the results of the observations taken at 7.35 A. M., with the prophecies concerning the weather for the day. The observers send their reports by telegraph to the Chief Signal Officer at Washington in cipher, for the double purpose of securing accuracy in the transmission and brevity in the despatch. These reports are translated, and 'Old Probabilities' forecasts the weather from these data. General Myer himself sometimes does this and his predictions are generally verified; Lieutenant Craig, Lieutenant Dunwoody and Professor Abbée usually perform this work, each taking his turn for one month, while the others are assigned to other duties, such as the verification of the prophecies from the returns received at a later date, and editing the publications made daily, weekly and monthly of the phenomena observed. In the daily bulletin is the synopsis of the reports, the probabilities, and the verification or failure of the prophecies. The weekly bulletin gives a resumé of the observations of the week, noting the commencement and progress of storms, their duration and other circumstances connected with them. The monthly bulletin is of a similar character, becoming more general in its nature. Reports are also received by mail from similar organizations in various parts of the world, and by means of these the whole route of a storm can frequently be tracked from its inception in the Rocky mountain range, where the greater number originate, to where they leave our shore, and crossing the Atlantic, break on the western coast of Europe, traversing that continent to a greater or less extent. Many reports are sent in by masters of vessels, and thus an almost connected account of any remarkable storm is obtained. In fact, it is hoped that, with proper

support, the time is not far distant when vessels will be specially commissioned to take these observations in mid-ocean.

“The charts printed at the various stations each day are posted in conspicuous places for the benefit of seafaring men and others, and their predictions are the guide to outward-bound vessels. In fact, the skipper who should take out his craft from an Atlantic port after the danger signal had been raised and the bulletin had informed him that a cyclone had started up the coast, would be regarded as a most reckless man to have charge of a vessel.

“It may be interesting to know how the data received point out the course of a storm. Long experience has shown that certain conditions of barometer and thermometer produce certain or nearly certain results. For instance, by taking a weather chart and drawing a line through all of the stations where the barometer is lowest, and drawing another line through all the stations with highest barometer, it will be observed from the arrows showing the direction of the wind that they all point from the latter line to the former line, or area of low barometer. These low or high barometer areas move usually a little to the north of east, and, with two observations as a basis of calculation, their velocity can be readily determined. Occasionally two or more low barometer areas or storm centres will unite in one grand storm. Observations have shown that the cyclones which start from the West Indies take one of two routes, or divide and pass over both. They come northward to the southern coast of Florida, then follow the Gulf Stream northward, or dash westward through the Gulf of Mexico, or divide at that point and go both ways.

“These daily charts are not alone valuable to the navigator, but are distributed for the benefit of the farmers. At a post-office distributing station, like Philadelphia, the midnight report is printed and goes out in the early morning mails to every post-office where it can be received early enough to be of service. These charts are hung up in the post-offices, and are consulted with much interest. The signs of the coming weather, which are usually looked for in the horns of the moon, in the dew upon

the grass, in the pigs carrying straws, in the wind 'backing round,' and other mysterious and ambiguous methods of getting up a wise prophecy, are now looked upon with deserved contempt in the rural districts, and the prophet who uses them is verily without honor in his own country.

"Lieutenant Grugan has constructed some appliances by which the apparatus on exhibition will be made to work rapidly enough to satisfy the most impatient sight-seer. He will raise the wind from any quarter, and at any rate of speed, from ten to sixty miles an hour, which will set the apparatus, elevated a few feet above the heads of the spectators, in motion. This is accomplished by means of a fan near the engine-house, which forces a current of air through pipes to the required spot. A shower-bath arrangement will produce an artificial rain-fall; the other instruments will work in the building without aid."

The field work of the Signal Service is of little consequence in time of peace, but during a war it is of the highest importance, as it is by means of it that distant portions of the army communicate with each other in the presence of an enemy. The display of it is made partly in the building and partly in the grounds to the westward of the building. The flags, books, and smaller instruments used by the Signal Corps are exhibited in the building. In the grounds is a complete field telegraph train, fully equipped and ready to erect fifty miles of portable telegraph line. A portable signal tower, constructed of light iron bars, rises to a height of seventy-two feet, and at its base is the wagon designed for its transportation. Here are the semaphore apparatus, signal flags, torches, rockets, bombs, mortars, colored lights, and other apparatus used for communicating with troops in the field and with vessels. One of these is called a "heliograph," and is a large mirror which transmits signals by sending flashes of the sun in different directions and at regular intervals.

The *Quartermaster's Department* exhibits a number of figures clothed in the uniforms used at various times in the American army from the Revolution to the present day. In this section are shown the tents, cooking utensils and tools, musical

instruments, blankets and beds, and machinery for cutting out clothing and making shoes used in the army. Here also are the portable forges, and the horse-shoes, in use at present, and a complete exhibit of the system of farriery practised in the service. The wagon train is placed out of doors to the north of the building, and has been already referred to.

The *Engineer Corps* make one of the most interesting exhibits in the building. Maps and drawings of the great works constructed on the coast, the improvements of rivers, lakes, and harbors, from 1776 to 1876, are shown.

Harbor improvements are illustrated by models of the different kinds of crib-work used in building piers on our great lakes, by drawings and models of improved dredge-boats, snag-boats, and grapples, by a fine model of the pier built on iron-screw piles at Lewes, Delaware, and by a model of the work at Hell Gate, New York, showing in miniature all the details of that important undertaking. This model is so arranged that the bed of the river can be raised, disclosing all the galleries which have been driven underneath it. Next to this model is a model of a steam-drilling scow, used in drilling holes for blasting rock under water where the current is very rapid. The peculiarity of the scow is a large iron dome, which can be lowered to the bed of the river, and inside of which divers can carry on their submarine work without being troubled by the current, no matter how rapid it may be.

Military engineering is illustrated by models made by Sergeant Benson, of the engineer battalion, on a scale of one inch to the foot, of a complete pontoon train. These models, comprising wagons, boats, trestles, forge, tool-wagon, and everything pertaining to a pontoon bridge, are made of black walnut and German silver, and are accurate to the smallest particular. The way the bridge is built is shown on a glass river, constructed for the purpose. Hanging above the model bridge train are a wicker gabion, iron gabion, and sap fagot. Near by are samples of intrenching tools.

A very interesting table is the one containing the various kinds of torpedoes and the electrical apparatus connected there-

with, and in a glass tank are shown models of the same things in the water, so that one can see exactly how these terrible weapons of defence are arranged in actual warfare. In another tank is a model of an iron crate, with what are called pressure-plugs, used to determine the force of explosion of dynamite under water.

These models were made by Sergeant Nolty, of the battalion of engineers. One large table is devoted to models of counter-poise gun-carriages, which are devices by means of which heavy guns can be lowered below the parapet, loaded with safety from the enemy's fire, and raised again to be fired, and all with the greatest ease.

The display of instruments pertaining to geodesy, meteorology, and astronomy is very fine, and speaks volumes for the knowledge and ability possessed by our engineer officers.

A model of a sounding machine will interest hydrographers. By it twenty soundings can be taken in a minute and automatically recorded. Quite a striking display is that of specimens of building stone, from over one hundred different quarries. These specimens are four inch cubes, with one side polished, and are arranged on a black velvet pyramid, which shows them off to great advantage.

A complete display is made of the various articles needed for the equipment of the Engineer Corps of the army in active service. The pontoon train is exhibited in the grounds north of the building. In the hall are field photographic instruments, siege and mining tools, and reconnoissance instruments.

The *Ordnance Service* exhibits its large guns outside of the building, as has been stated. The display within the hall is large, and merits the most careful study.

The manufacture of arms is shown in the most admirable manner. Here is seen in practical operation all the rifle-making machinery which the Government Armory at Springfield, Massachusetts, could crowd into the limited space. The skilful men operatives begin with the round bars of steel and the long blocks of black walnut, turning out complete the handsome weapons of death almost as rapidly as the latter

could be made to end human lives. The plain strip of walnut is applied to the lathe, and in three minutes and fifteen seconds is perfectly gun-shaped; then to the borer, which prepares it for the lock in one more minute. It is then a finished stock. To enumerate all the other machines used before coming to the gun-barrel, including the gang-driller for boring out the receiver, the miller for milling the same, the firing-pin and tang-screw machines, would be attempting too much in this space. All of them are of gigantic strength, and yet their construction is as fine as that of a watch. There must be no irregularity in their operation, not even to the extent of the one-thousandth part of an inch. The barrel is bored out by three or four augers of different and regularly-increasing size. One of these guns, a Springfield breech-loading rifle, is wrought upon by no less than 550 different operatives before it is perfect. These manage 1200 machines, and the number of guns which they can turn out in a day of eight hours is about 400. The bayonet-grinder attracts hundreds about him. The bayonet having been wrought into nearly perfect shape, he takes and applies it to a fine-grained grindstone, making 1500 revolutions per minute. The sparks don't fly; they flow straight out like the tail of a comet. It is known, of course, that all this machinery is operated by steam, the engine-house being immediately outside the main building.

In the adjoining section the manufacture of cartridges and bullets is in progress. Nine women are employed in making cartridges, there being as many different machines, and through these must go the constituents that finally come out a cartridge. There is the cutter and cupper, which cuts the copper plates into circular pieces as large as a silver half-dollar, and then punches them through a hole, shaping them like a cup. Several other cupping machines, differing only in the diameter of the hole, each in turn takes the cup and lengthens it, until finally it is headed in another machine, has the fulminated cap inserted in another, the charge in another, and the bullet in the last.

Here are models of gun-plants and forges, illustrating the whole process of cannon making. Gatling and other battery guns

are shown, and small models of field artillery as well as the guns themselves. Caissons and artillery forges, models of sea-coast and siege guns, showing the manner of using them in barbette and casemate batteries, and a series of Whitworth, Sutcliffe, Mann, Moffat, and Hotchkiss breech-loading field rifle-guns are exhibited. Close by are several handsome brass guns, bearing the name and arms of Louis XVI., King of France, presented to the United States by Lafayette during the Revolution.

Along the wall is arranged a collection of all the various styles of guns and pistols ever used in the United States army, from the old flint-lock of the Revolution up to the splendid breech-loading rifle of to-day. Here are several Chinese and Japanese match-locks, and a match-lock of the fourteenth century, one of the first guns made after the adoption of fire-arms in European warfare. Pyramids of shot and shell stand about the section, showing all the various projectiles used in warfare. Here are mountain howitzers, their carriages and also ammunition chests—all on pack-saddles—just as they are carried over mountains or bad roads on the backs of mules; stuffed uniformed figures of cavalrymen on the backs of papier-maché horses; the mortal and stuffed remains of the famous trotter George M. Patchen, hitched to a carriage containing a Gatling gun; a Hotchkiss revolving cannon (for field use, discharging eighty rounds of shells or canister-shot per minute), and a section of oak which stood inside the intrenchments near Spottsylvania Court House, and was cut down by musket balls in an attempt to recapture the works previously carried by the Second Corps, Army of the Potomac, May 12th, 1864.

In contrast with the splendid cannon of to-day are a number of old guns cast at Philadelphia and Germantown during the Revolution.

Plans of the United States arsenals are exhibited, and at the western end of the section is a handsome model of the arsenal and grounds at Rock Island, Illinois.

The space occupied by the War Department is handsomely draped with flags, and is ornamented with fine portraits of the

secretaries of war, and the most distinguished generals of the army.

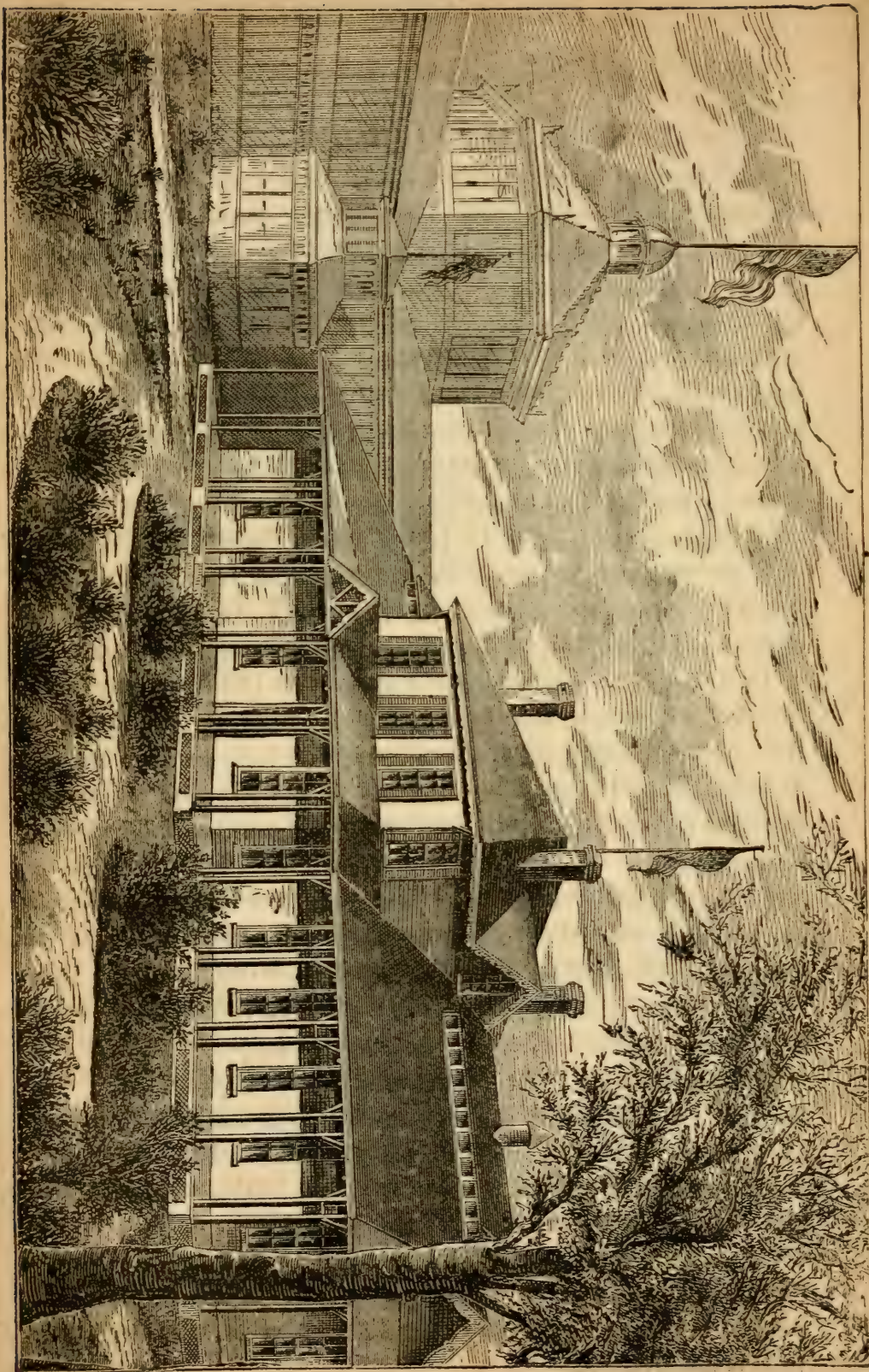
The Post Hospital.

The *Medical Section* of the army makes no exhibit in the Government Building, but confines its display to the Post Hospital, which stands in the government grounds to the north of the principal building. The hospital is a plain but neat frame structure, two stories in height, with a wide piazza running all around it. It is designed to show a complete post-hospital of twenty-four beds of full size. The principal room on the lower floor shows the arrangement of the beds, and the conveniences provided in the army hospitals for attending to the wants of the sick and wounded. The treatment of wounds and other hurts is illustrated by papier-maché figures placed in the beds in the positions necessary to the proper treatment of such injuries. Upon the walls of the room and the halls adjoining it are hung photographs of difficult and successful amputations.

In this room is Mr. Thomas Eakins' fine picture of Dr. Gross delivering a clinical lecture to a class of students. It is one of the most powerful and life-like pictures to be seen in the Exhibition, and should have a place in the Art Gallery, where it would be but for an incomprehensible decision of the Selecting Committee.

In the adjoining rooms are models of the barrack "General Hospitals" used during the civil war; models of hospital steamers, such as were used during that struggle on the tide-water rivers of the East and on the Western rivers; and models of hospital railroad trains. Here also is a case of medical and surgical curiosities from the Army Medical Museum at Washington. A third room is fitted up as a dispensary, and contains samples of medical supplies. Opposite this is the office, with a collection of surgical instruments, medical works, and the blanks and record books used in the hospital service. A fifth room is fitted up as a dining-room, and contains a display of table-ware and mess furniture. Opening into this room is a kitchen with a full equipment of cooking utensils and other articles needed in this department.

POST HOSPITAL OF THE UNITED STATES ARMY.



The rooms on the second floor contain a display of medicine chests and panniers, stretchers, litters, artificial legs and arms, and trusses for rupture and other apparatus.

In the grounds in the rear of the Post Hospital are shown several hospital tents of various sizes, and a park of ambulances, medicine wagons and carts.

The Laboratory.

Between the Government Building and the Post Hospital is a small frame building intended for a laboratory for the manufacture of cartridges and other dangerous compounds. It forms a part of the exhibit of the Ordnance Department. It is built after designs by Colonel T. T. S. Laidley, of the army, and consists of an iron frame with a wooden covering. This method of construction is intended to lessen the loss of life in case of accidental explosions. In such an event the wooden covering is blown out by the force of the explosion, but the iron frame is left standing, and the building does not fall in upon its inmates. The frame of the present building was used for one which formerly stood in the grounds of the Bridesburg Arsenal, at Philadelphia. It was destroyed in August, 1875, by the accidental explosion of from 600 to 800 pounds of gunpowder. The wooden sides were blown outward, but the iron frame stood firm. Of the twenty-one persons employed in the building at the time, but three boys died from injuries received.

The present structure contains several portraits of the secretaries who have presided over the War Department, including a not very good one of Jefferson Davis, and instruments for ascertaining the velocity of rifle balls.

The Lighthouse.

In addition to the display made in the Government Building, the Lighthouse Board of the Treasury Department has erected opposite the northeast corner of that building an iron lighthouse, such as is used on the dangerous shoals of our coast. The base of this structure is of wood, but is painted to represent stone. To this the iron flanges of the superstructure are

bolted, and above this is a high iron cylinder, eighteen feet in diameter, the whole being surmounted by an ornamental iron tower. In the centre of this tower is placed a revolving or flash-light of the fourth grade, and over one of the dormer windows is suspended a fog-bell weighing 4950 pounds. The light is revolved and the bell is struck by clock-work, the flashes of the light and strokes of the bell being regulated at the will of the light-keeper. The bell is intended to be struck first three times, then twice, and then once, this being the signal adopted for one of the shoals of Long Island, to which the lighthouse is to be removed after the close of the Exhibition.

Near the lighthouse is "The Syren," or fog-horn, which is simply an enormously long horn blown by steam. It emits a most deafening sound, and has been heard for a distance of thirty-five miles. A smaller horn is also shown. It is operated by a caloric engine, and is intended for a light-ship. Near this is a large lantern and an iron lattice work signal for day and night use on light-ships. The lights and signals are fastened near the top of the mast, and are distinguished by a difference of color. A number of buoys are scattered about the base of the tower.



CHAPTER XVIII.

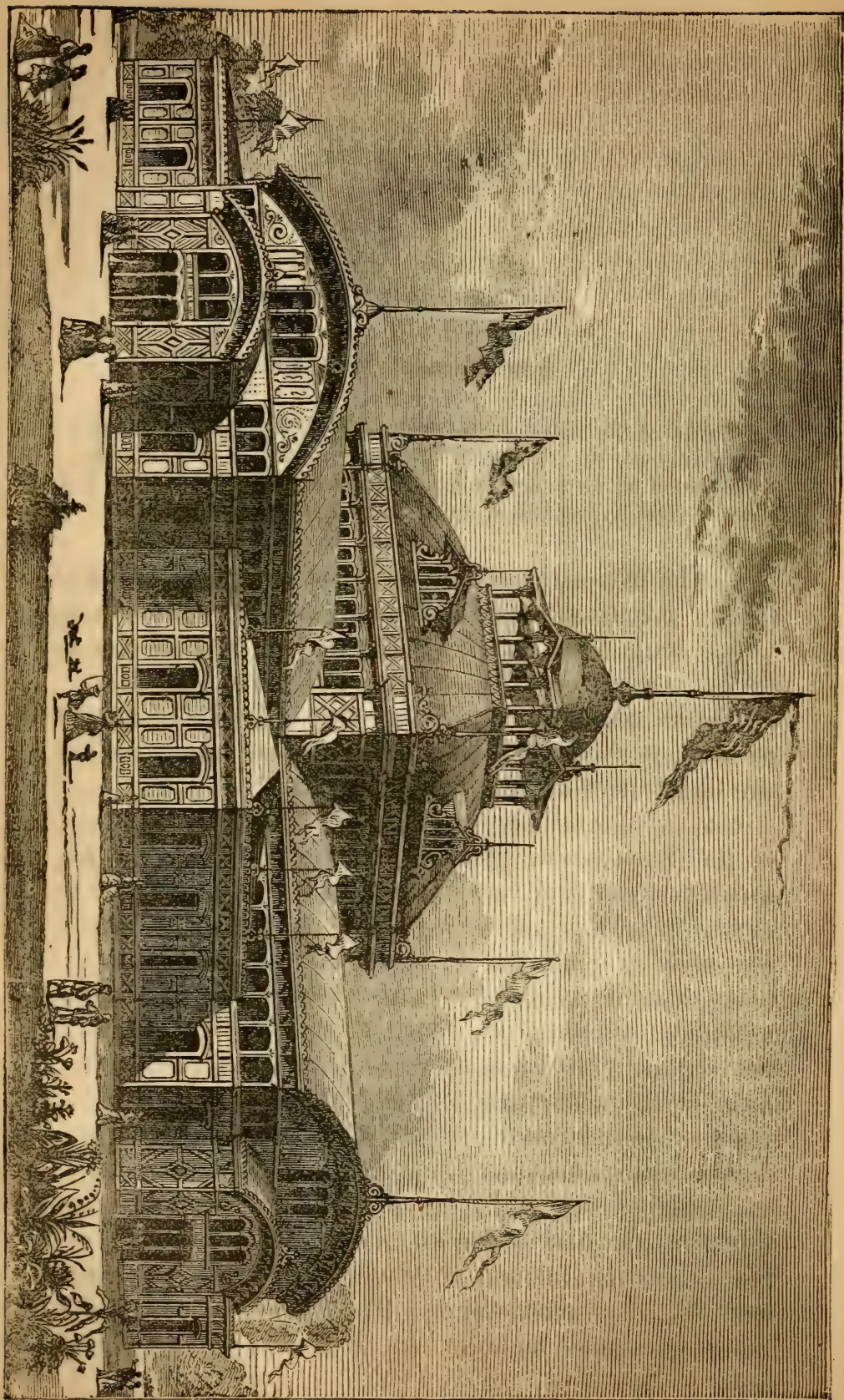
THE WOMAN'S BUILDING.

Description of the Building—Its Cost—A Lady Engineer—The Interior of the Building—The Exhibit—The Looms—Works of Female Artists—Inventions of Women—Institutions Managed by Women—Splendid Embroideries—Display from Foreign Countries—The Printing Office.

THE Woman's Building is one of the handsomest edifices connected with the Exhibition, and owes its existence entirely to the efforts of a number of ladies known as the "Women's Centennial Executive Committee." It is devoted exclusively to the exhibition of the results of woman's labor, and thus constitutes an altogether unique feature of the great fair.

The building stands on Belmont avenue, at the western end of the Horticultural grounds. It covers an area of 30,000 square feet, and is formed by two naves intersecting each other, each 192 feet long and 64 feet wide. At the end of these there is a porch 8 by 32 feet in size. The corners formed by the intersection of the two naves are filled out by four pavilions which are included in the hall. Each of these pavilions is 48 feet square. The whole structure is of wood, the architecture being of the modern style. The centre of the edifice is 25 feet higher than the rest of the building, and is surmounted by a lantern with a cupola on top of the same, giving to this part of the building a total height of 90 feet. The most striking feature of the plan is that there are in the whole interior but four supporting columns to the roof, all the rest being trussed over from the outside walls. The exterior is painted a light bluish gray color, and the interior is finished in the softest shade of light blue.

WOMEN'S PAVILION, INTERNATIONAL CENTENNIAL EXHIBITION.



Work upon the building was begun about the middle of October, 1875, and it was turned over to the "Women's Committee," completed, early in January, 1876. The design was prepared by Mr. H. J. Schwarzmenn, the architect of Memorial Hall. The cost of the building and its internal arrangements was \$30,000, which sum was raised through the exertions of the ladies having the enterprise in charge.

The appearance of the interior is very pretty and attractive. A tasteful fountain, situated immediately under the lantern, sends a graceful jet of water into the air, and around the basin in which it stands is a cool and inviting rim of rock-work and ferns. A large chandelier hangs from the central point of the roof, and banners and streamers ornament the hall.

At the north side of the building is the engine house, in which a Baxter portable engine of six horse power supplies the motive power for the machinery in operation in the hall. The engine is in charge of Miss Emma Allison, of Grimsby, Iowa, who, if she does nothing else, offers an example worth following to the engineers of the male sex in the neatness of her dress and the perfection of cleanliness exhibited in both engine and engine-room. The young lady is highly educated, and is thoroughly posted in theoretical as well as practical mechanics.

The engine operates a number of spinning frames and power looms in the hall, which are constantly at work, in charge of female operatives. It runs also a small Hoe cylinder press, on which the journal issued from this building is printed.

The display within the hall is quite large, and includes nearly everything of woman's work or invention that could be collected. Paintings and statuary by female artists are shown in the northern section of the hall, but the collection falls short of illustrating the highest triumphs achieved by the sex in these departments of art.

A most interesting exhibit is made in the southeastern section of the building, of the inventions of women in machinery and other fields of labor. The majority of these are designed to

economize household labor. First of all, there is a machine for washing blankets, which every housekeeper knows to be one of the most difficult operations of the laundry. The same lady inventor exhibits two mangling machines. A system of self-fitting patterns, intended to enable ladies to dispense with the services of a dressmaker, is also shown. Here is a barrel-cover which can be locked, and which thus serves as a protection to sugar and flour barrels. Here are smoothing irons to be heated by gas as they are used; a frame for stretching and drying lace curtains; dusting racks and many other household appliances. Here are a machine for washing dishes, which not only cleans but dries them; a patent bedstead, fitted up with drawers; a combined travelling-bag and chair; a life-saving mattress, which floats like a cork and will not turn over; chest-protectors; surgical appliances and dental products. Here are some remarkably well-executed pictures worked in human hair, and a number of flowers and toilet articles made entirely of fish scales. A bouquet of wax flowers is shown made by the great-granddaughters of the author of the Declaration of Independence, who, in the midst of the rejoicings of this Centennial year, are left to make an almost hopeless struggle with poverty. Here also is a whistle made of the tail of a pig, which completely upsets the old Scotch adage, that "Out of a pig's tail you can't make a whistle."

In the southern section are photographs of the various institutions in the United States which were established or are conducted by women. Prominent among these are the Shelter for Colored Orphans, at West Philadelphia; the House of the Holy Family, at New York; the Old Ladies' Home, Lowell, Massachusetts; the Home for Young Women and Children, Lowell, Massachusetts; the New England Hospital for Women and Children; the New York Lying-in Asylum; the New Haven Orphan Asylum; Home for Friendless Women, Indianapolis; Reformatory Institute for Women and Girls and the Home for Friendless Women, at Fort Wayne, Indiana; the Old Ladies' Home, at New Albany, Indiana; and the Orphans' Home, at Richmond, Indiana.

In the southeastern section is a large collection of embroideries by hand, the most of it in glass cases. Here are a number of portraits worked in silk or embroidered in worsted. There are portraits of Queen Victoria, Mr. Gladstone, Prince Albert, the Prince and Princess of Wales and others. An elaborate picture in worsted-work represents the "Death of George Douglas at the Battle of Langside." Here are splendidly embroidered garments of various kinds for ladies and children, carriage-robcs, afghans, and a picture in needle-work of Abraham and Hagar. Mrs. Mary Champneys sends a pair of socks which she knit in her one-hundredth year.

In the northwestern section there are some fine wood-carvings by ladies, and sets of chamber furniture designed by them. Close by are sets of porcelain ornamented by lady artists, some of which are very beautiful.

The southwestern section of the hall is taken up almost entirely by exhibits from foreign countries. The ladies of Great Britain, Canada, Sweden, France, and the Netherlands, and other countries have sent contributions to this department, which are among the handsomest articles displayed in the hall. The Royal School of Art and Needlework, under the patronage of her Majesty the Queen of England, the exhibit of which we noticed in our account of the Main Exhibition Building, has here several cases of superb embroideries and needle-work.

Egypt also sends several specimens of rich embroideries in gold and silver thread. Here are a set of velvet covers for doors richly embroidered in quaint designs with gold thread by the wife of the Bey of Tunis. They are among the most beautiful specimens of needle work in the entire Exhibition. From the Netherlands are some beautiful silk embroideries and some feather-work, and from France silk embroideries, and specimens of the drawings of the pupils of the female art schools of Paris.

In the Canadian department are a number of finely executed models representing the church and chapel of Notre Dame, at Montreal, the Mother House of the Sisters of Notre Dame, the Orphanage at Joliette, the St. Alexis Orphan Asylum, the Monastery of the Good Shepherd, the Convent of the Good

Shepherd, Quebec, the St. John's Asylum, the Hotel Dieu and the General Hospital, at Quebec. The inmates of these establishments send beautiful specimens of their handiwork, including a picture in worsted of the Lord's Supper, and cases of silk dresses, flowers, and a carved picture-frame. There are also in this exhibit many handsome pieces of straw-work, silk flower-work, laces, anti-macassar and cretonne work.

Norway and Sweden each send embroideries, flowers, and articles made from fish-scales, articles ornamented with moss, clothing, and articles of household use. Their displays resemble each other very closely. Near the western wall of the portion of the building occupied by these two countries are four life-size figures in wax, similar to those in the Main Building, representing not only the costumes but the facial characteristics of the Swedish peasants. The first three represent two young ladies anxiously blowing to pieces one of those little flowers which are supposed to tell a maiden whether her lover is true or not. Behind them stands a young man watching the result with an expression half anxious, half amused. The other figure represents a bride in the peasant dress.

Japan fully sustains her reputation by her display here of articles in the manufacture of which the women of that country have attained great skill. Among these articles of utility, as well as beauty, are cigar-cases, cabinets, work-boxes, writing-desks, satchels, etc., all made of wood and most delicately ornamented with lacquer and inlaying, many of them being adorned with grotesque yet not wholly inartistic figures in ivory and ebony. There are also displayed a large number of artificial flowers, which, in shape and color, are close counterparts of nature, besides a number of raised pictures in wool. The last-mentioned exhibits have a peculiar effect somewhat akin to perspective, but they are nevertheless unnatural. Several large screens ornamented with numberless fans, which in turn are ornamented with figures of various kinds, are also in this collection. Some of the figures are painted, while others are worked in wool, or made of cloth raised high from the surface. One of the most striking of these exhibits is a large six-panelled screen, with a

framework of ebony ornamented with gilt and silver plates. The back of the screen is covered with a plain gold pattern of a pretty design, and the front has a ground of yellow silk, in which are worked a variety of ladies' fans. On these are depicted Japanese mandarins, tradesmen, merchants, mechanics, farmers, jugglers, and all engaged in the pleasures, professions, or occupations to which they were born. The figures themselves are of paper, but the clothing, with all the variety of ornament and minuteness of detail, is made of silk, and, like many other of the Japanese pictures, raised from the surface. A cabinet containing screens and ottomans is a very fine piece of work, and is universally admired. The specimens of plain and embroidered silk exhibited are peculiarly interesting, not only from the richness of the material, but from the quaint yet really beautiful designs.

The ladies of Brazil make a handsome exhibit of table covers, embroidery, and fancy work, many of the articles being the contributions of the inmates of the Brazilian Orphan Asylums. Among these the most noticeable exhibit is a cabinet of gold lace-work. A pretty little pincushion, made of shells and silk, and a sample of the needlework of the Viscountess de Itamaraty, attract much attention. A very beautiful model in cork of a noted Brazilian castle, a wreath of flowers made entirely of leather, several cushions, delicately embroidered with silk and wool, by the pupils of the Orphan College of St. Theresa and the College of the Imperial Society, are all exceptional pieces of work, and are, of course, much admired. Among the other more noticeable exhibits are some elegant specimens of lace-work, scarfs, and artificial flowers made of leather and feathers.

Near the centre of the building is a small printing office in which female compositors are engaged in setting up the type of *The New Century for Women*, a journal conducted entirely by women, and issued from this building.

Altogether the display in the Woman's Building is very creditable, and reflects great credit upon the good taste and administrative ability of the ladies having it in charge.

CHAPTER XIX.

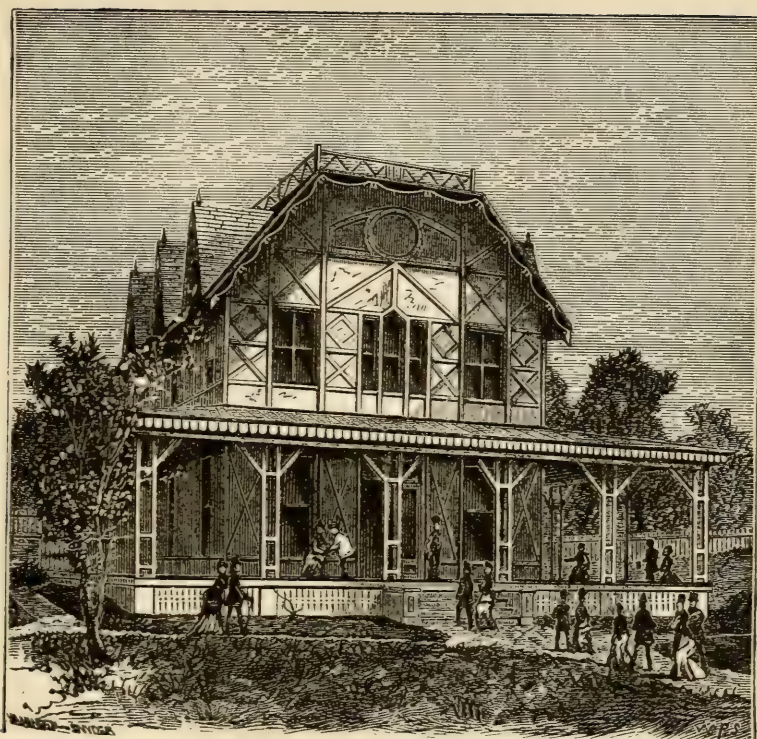
THE MINOR STRUCTURES OF THE EXHIBITION.

The State Buildings—St. George's House—The French Government Building—The French Stained Glass Pavilion—The German Government Building—The Spanish Buildings—The Portuguese Building—The Swedish School-House—The Canadian Log-House—The Brazilian Building—The Japanese Dwelling and Bazaar—The Turkish and Tunisian Coffee Houses and Bazaars—The Syrian Bazaars—The Moorish Villa—The Chilian Machinery Hall—Buildings of the Centennial Commission—The Judges' Hall—The Restaurants—The Shoe and Leather Building—The Brewers' Hall—The Butter and Cheese Factory—Department of Public Comfort—Singer Sewing Machine Cottage—The Centennial Photographic Association—The American Railroad Ticket Office—Empire Transportation Company's Building—Starr's Iron Works—The Glass Works—Campbell Printing Press Building—The American Newspaper Building—The World's Ticket Office—The Palestine Camp—The Women's School-House—The American Kindergarten—The New England Farmer's Home and Modern Kitchen—Pacific Guano Company's Building—The Sheet-Metal Pavilion—The Café de Brazil—The United States Life-Saving Station—The Elevated Railway—The Windmills.

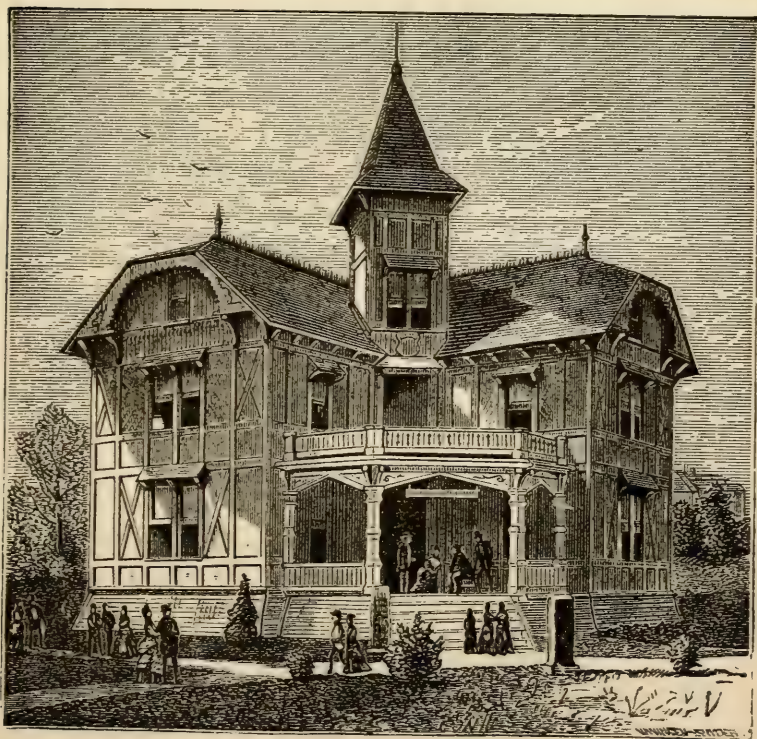
The State Buildings.

THE State buildings were erected by the Commissioners of the respective States to which they belong, the cost being defrayed by appropriations by the legislatures of those States. The majority are located on State avenue, in the northwestern portion of the Exhibition grounds, but a few are in other parts of the enclosure. We shall take them in their geographical order.

New Hampshire.—The New Hampshire Building stands on State avenue, immediately west of the Michigan Building. It is fifty feet square, and is a small and plain, but tasteful, frame cottage, with a reception room on the first floor, and a ladies'



NEW HAMPSHIRE STATE BUILDING.



WEST VIRGINIA STATE BUILDING.

parlor up-stairs. It is intended, like all the State buildings, as an office for the Commissioners of the State, and a rendezvous for visitors from the State to which it belongs to the Exhibition. It is ornamented with fine photographs of White Mountain scenery.

Vermont.—The Vermont Building stands in a garden plot to the north of Machinery Hall, and near the Turkish Coffee House. It is a handsome cottage, thirty-five by forty feet in size, and the interior is fitted up simply but tastefully in stained pine wood. It contains the offices of the Vermont State Commissioners, a reading-room and a ladies' parlor. In the latter is a fine Estey organ.

Massachusetts.—On State avenue, immediately west of the Connecticut cottage, the commonwealth of Massachusetts has erected one of the handsomest cottages in the grounds. It is of wood, and consists of a central building with wings at each end, around which are wide and cool piazzas. The building covers an area of eighty-seven by seventy feet, and is painted in dark, rich colors. It is two stories in height, and from the central point of the roof rises a tower surmounted by a flag-staff. The entrance hall is wide and spacious, and extends from the front door to the rear of the building, at which is the office for the transaction of the business of the house. On the left of the hall are the reception room of the Board of State Commissioners and the ladies' parlor, and on the opposite side the reception room of the Governor of Massachusetts and the reading-room. The first three rooms and the hall are handsomely furnished, and the whole building has an air of elegance and comfort which are admirable.

Rhode Island.—The Rhode Island Building is a small but tasteful frame cottage, situated on the slopes of George's Hill, to the west of the Mississippi Building. It is fitted up with the offices of the State Commission and reception rooms.

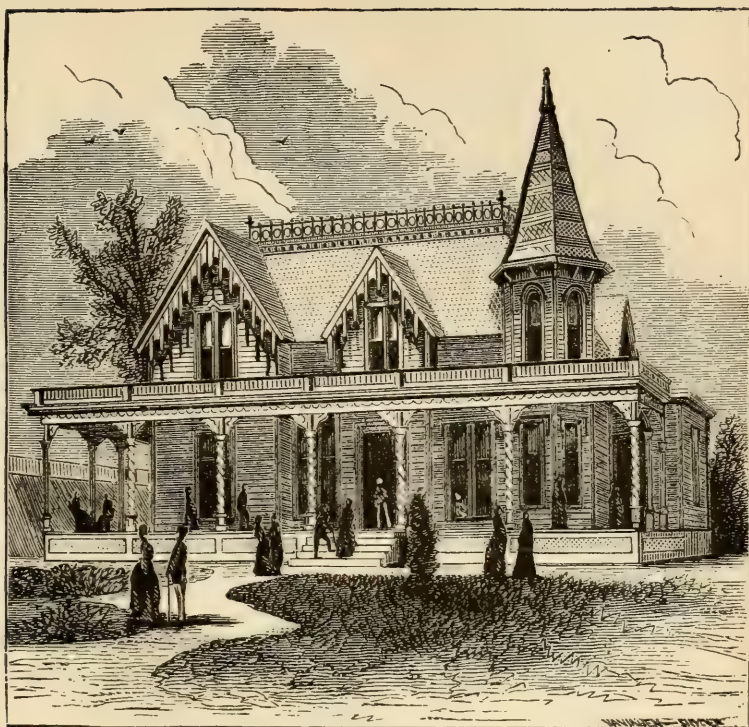
Connecticut.—The State of Connecticut has erected as its headquarters a tasteful two-story cottage, on State avenue, between the Massachusetts and New Hampshire buildings. It is intended to represent a colonial homestead of a century ago. The

building is about forty feet square, and the front is of octagonal shingles, timber and plaster. The low second story projects four feet over the first story. In the centre of the front is a stout wooden porch over a strong old-fashioned hatch door divided horizontally in the middle. Over the porch are the coat-of-arms of the State and the motto, "Qui Transtulit Sustinet." On the roof is a dormer-window, raised three feet above the eaves and with a slanting roof reaching nearly to the peak of the main roof. The main roof starts in front from the eaves at a height of eighteen feet from the ground, and after running up to a peak about the centre of the building slopes to the rear, where the eaves are only ten feet from the ground. On the east side of the house is a balcony at a window eight feet wide, and at a window in the second story the State coat-of-arms is to be displayed. On the west side is a picturesque verandah of heavy timber. The windows are all glazed with lights six by eight inches. In the centre of the building is a substantial stone chimney.

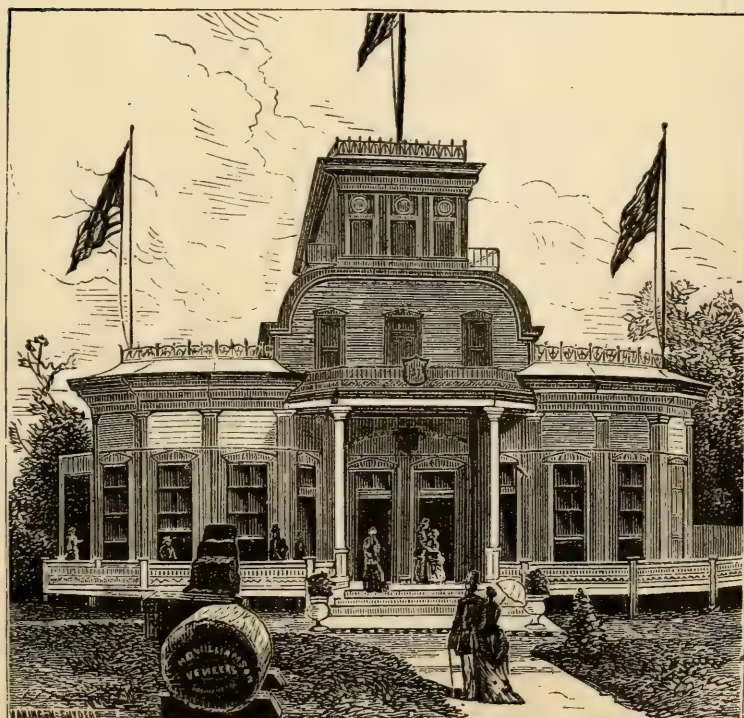
In the interior is a reception room twenty-two by twenty-nine feet, seventeen and one-half feet high, with a gallery on front and two sides three and one-half feet wide. The whole interior is finished with wood, stained to give it the appearance of age. An old-fashioned fireplace stands opposite the front door. It has an ample hearth and stone front surrounded by pictured tiles. Shelves supported by heavy brackets are over the fireplace, and above them panelling reaches to the ceiling. Back of the reception room is the principal office for the State Commission, janitor's room and parlors for ladies and gentlemen.

New York.—The New York State Building is a highly ornamental two-story cottage, with wide verandahs running around it and a tower rising from the centre of the front of the roof. It covers an area of eighty by thirty-five feet, and is painted in light colors. It stands immediately south of State avenue and east of the British Government Buildings. It is simply but tastefully furnished, and contains the offices of the State Commission and reception rooms for ladies and gentlemen.

New Jersey.—The State of New Jersey was the first after



ILLINOIS STATE BUILDING.



INDIANA STATE BUILDING.

Pennsylvania to take up the Centennial Exhibition scheme, and since then her assistance has been of the most liberal character. It is not surprising therefore that the State is represented by one of the most elaborate and attractive structures on the grounds. The building stands immediately north of the Woman's building, on the east side of Belmont avenue. It is a wooden structure of unique design; is covered with tiles manufactured from New Jersey clay, and presents a novel as well as interesting appearance. Above the main entrance rises a lofty tower from which an admirable view of the grounds may be obtained. The chimney is a conspicuous portion of the building, and is made of brick manufactured in various portions of the State. The building covers an area of eighty-two by forty-two feet. The interior is finished in dark, rich colors, and consists of a wide, cool reception room, with wide windows on the first floor, with offices and parlors for ladies opening upon it. The upper rooms are for the use of the State Commissioners. The furnishing is simple but tasteful.

Pennsylvania.—The Pennsylvania State Building stands north of Machinery Hall, and near the lake. It is a handsome Gothic cottage, ninety-seven feet long and fifty-seven feet wide, and is painted a light-brown. Over the main entrance rises a large tower flanked by two smaller ones. A wide piazza extends around the building. The main entrance leads to a large Gothic hall, into which open the manager's office, the Governor's room, parlors for ladies and gentlemen and the reading-room. The upper rooms are for the use of the State Commissioners. The rooms are richly furnished and the interior of the building is elegant and handsome.

Pennsylvania Educational Hall.—In addition to her State building, Pennsylvania has erected a separate structure for the display of her schools and educational system. It is situated immediately to the west of Memorial Hall, and is circular in shape, with a dome rising in the centre of the roof. The interior consists of a central hall lying immediately under the dome, and an outer corridor or hall running entirely around it. This outer hall is divided into a number of sections or stalls, in

which the exhibits are arranged according to a regular system. The central hall is unbroken and opens into the outer hall by several doors.

Entering by the south door, the attention of the visitor is



PENNSYLVANIA STATE BUILDING.

drawn to the exhibit of the Kindergarten system which stands on his right. This is one of the most complete showings of Froebel's system in the Exhibition, and is deeply interesting. The next section on the right shows the primary-school system

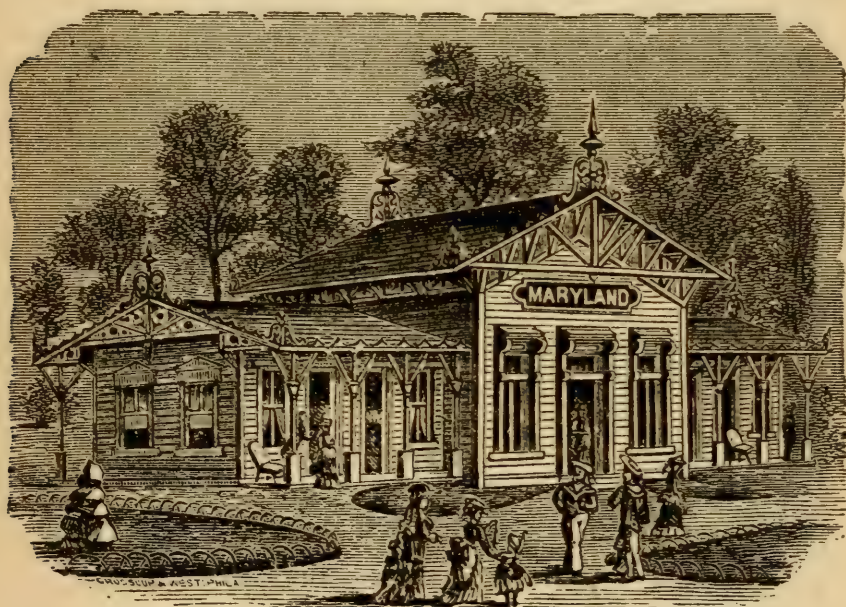
of Pennsylvania. Then follow the secondary, grammar and high school, each in regular succession, after which the normal school and college systems are shown, the whole ending with the exhibit of the University of Pennsylvania. The exhibit is made by showing the text-books, furniture, scientific and philosophical apparatus used in the schools, and by specimens of the pupils' work, such as we have alluded to in our account of the school exhibits in the Main Building. No State makes such an elaborate display as is to be seen here, this magnificent exhibit being under the charge of Professor Wickersham, who is the State Superintendent of Schools. Models, drawings and photographs of the State schools of various grades and of several of the colleges are shown, and the educational statistics of the State are displayed by means of charts. The technical schools show drawings, casts and models, the various apparatus used by them and specimens of the work of the pupils. The display includes the schools for the blind, the feeble-minded, the deaf and dumb, and the orphans of the soldiers and sailors of Pennsylvania who died in defence of the Union during the late civil war. Specimens of their work in the industrial departments are exhibited, and a full showing is made of the course pursued in them. There is also an exhibit of Sunday-school material, such as maps, charts, forms and models.

Delaware.—The Delaware State Building is a handsome frame cottage of two stories, in the Norman-Gothic style, with a tower, and is situated on State avenue, to the west of the Massachusetts Building. It is simply furnished, and contains the offices of the State Commissioners and parlors for ladies and gentlemen.

Maryland.—The Maryland Building is situated a little to the north of State avenue, and west of the Delaware house. It is eighty-five by seventy feet in size, and is built of wood. It contains the offices of the State Commissioners, reception rooms, and a large hall in which an exhibit is made of the agricultural products of the State, its mineral ores, marbles and other building stones, timber, etc. The oyster fisheries of the Chesapeake bay and its tributaries are illustrated by specimens of oysters in

the shell, and by a complete display of models of all the boats and other apparatus used in the fisheries. In one of the rooms on the west of the hall are a number of specimens of the work of the pupils of the State schools of design ; and in an adjoining one portraits and other historical relics loaned by the Maryland Historical Society. One of these is the banner presented to Pulaski by the nuns of Bethlehem, Pennsylvania, in 1778.

In the grounds in front of the building the Baltimore & Ohio Railroad Company exhibit an old "grasshopper engine," made in 1835—one of the first locomotives ever used in this country



MARYLAND STATE BUILDING.

—and one of their largest six-wheel engines, which is said to be the largest passenger locomotive in the world.

Virginia.—A private gentleman has erected a plain cottage of two rooms, in the rear of the Woman's Building, to serve as a rendezvous for visitors from the old State of Virginia, which declined to make any appropriation to the Exhibition.

West Virginia.—The State of West Virginia has a handsome edifice on Fountain avenue, near the Total Abstinence fountain. It covers an area of fifty-nine by thirty feet, and is built entirely of timber from the State to which it belongs. It is a

two-story structure, with a tower in the centre. The building consists of two portions, an octagonal front, with a central hall open from the floor to the roof, with a gallery running around the second story, and a rear hall, rectangular in shape. The octagon contains the offices of the commissioners and reception rooms for visitors. The hall in the rear is filled with a handsome display of the agricultural and mineral products of the State. The native woods are shown by large sections of trees, and by eighty smaller blocks in the shape of books. The bark is left on the back of each, and the name of the wood is printed in gilt letters and pasted on the bark. The row of samples thus resembles a collection of handsomely bound volumes. The rich coal and coal oil of the State are shown by large blocks of the former and jars of the latter. A fine display is made of iron ore. Large blocks of bituminous coal stand in the grounds adjoining the building. A considerable display is made of tobacco, and of oils, wines, mineral waters, mineral paints, glass sands and marls. Building stones of the best quality are also shown. The public school system of the State is shown, with specimens of the text-books used.

Mississippi.—The Mississippi Building is a neat and tasteful two-story log cabin. It is forty-three by thirty feet in size, and is built of wood covered with a frame work of logs with the bark on, all the timber used in its construction being shipped direct from Mississippi. There are sixty-eight different kinds of wood used in the building, and the ornaments to the balconies, door-ways and windows consist of knots, roots and curious formations found in the Mississippi forests. The walls of the interior are finished in highly polished pine wood of various kinds. Some of these specimens resemble bird's-eye maple, and others are as dark as mahogany. The exterior of the structure is covered with Spanish moss, which gives to the building a most picturesque appearance. The building contains the offices of the State Commission and reception rooms for ladies and gentlemen. The building stands on the slopes of George's Hill, to the north of the West Virginia Building.

Tennessee.—Tennessee is represented only by a canvas tent

between the Maryland and Iowa buildings, erected by a private individual. It contains a small exhibit of the iron ores of the State.

Arkansas.—The Building of the State of Arkansas is situated on the south side of State avenue, west of the British Buildings. It is constructed of wood, is octagonal in shape, about 80 feet in diameter, and has a double dome in the centre. It is painted in bright colors without and within, and the interior is handsomely draped with flags and streamers. A handsome bronze fountain stands in the centre, under the dome, and around the hall is arranged a special display of the mineral and agricultural resources of the State. The woods, minerals and coal are shown to excellent advantage, and a capital display is made of the excellent cotton grown in this State. The building also contains the offices of the State Commissioners.

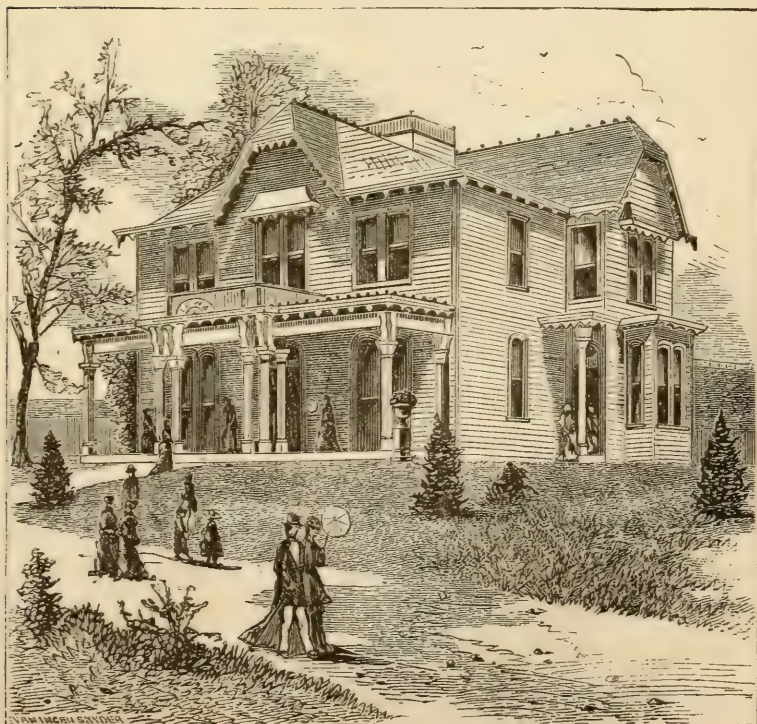
Missouri.—The Missouri Building stands north of State avenue, on the slope of George's Hill, and adjoins the Iowa Building on the west. It is a two-story structure, with a tower at its eastern end, and covers an area forty by sixty feet in size. It contains but a single room on the first floor (the ladies' parlor being in the second story), which is neatly but simply furnished. Here is a cabinet of specimens of the minerals found in the State, and of the native woods.

Ohio.—The Ohio Building is located at the eastern end of State avenue, immediately west of Belmont avenue. It is the most elegant and substantial of all the State edifices, and is constructed of dressed stone furnished by twenty-one quarries of the State. All the materials used in its construction were furnished by citizens of the State of Ohio engaged in the manufacture of the respective articles, and are intended as special exhibits. The building is forty feet square inside, is two full stories and an attic in height, and is fitted up with reception and reading-rooms and the offices of the State Commission. In the rear is a large hall or annex, of wood, sixty feet long, intended for the exhibition of articles from Ohio and for public meetings.

Indiana.—The Indiana Building stands on State avenue,



MISSOURI STATE BUILDING.



IOWA STATE BUILDING.

immediately west of the Ohio Building. It is a handsome wooden pavilion, and covers an area sixty by forty feet in size. It contains a principal hall, into which open the reading-room and ladies' parlor. The walls of the principal hall consist of different colored panels, on which are painted the population, agricultural and other statistics of the various counties of the State. The offices of the Indiana Commissioners are in this building.

Illinois.—The Illinois State Building is a handsome frame cottage, and adjoins that of Indiana on the west. It is two stories in height, and contains a large reception hall, in which is a fine organ, a handsomely furnished ladies' parlor, in which is an upright Chickering piano, a reading-room and the offices of the State Commission.

Wisconsin.—Wisconsin has erected for her State headquarters a plain but comfortable and neatly furnished cottage, immediately west of the Illinois Building. It contains the usual reception rooms, ladies' parlor and the offices of the State Commission.

Michigan.—The Michigan Building stands on State avenue, immediately west of the Wisconsin cottage. It is an elaborate structure of frame, with a tower at the southwest corner. The interior is very handsome, being fitted up in hard wood, and is divided into the usual reception rooms and parlors. The building contains the offices of the State Commissioners. It is handsomely furnished throughout.

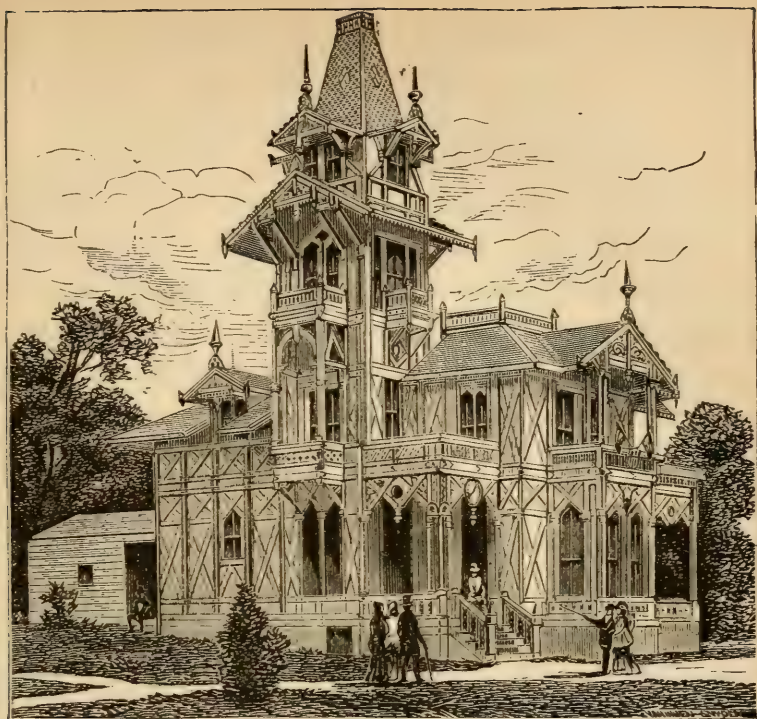
Iowa.—The Iowa Building is a neat and tasteful frame cottage, and stands on the slope of George's Hill, on the east of the Missouri Building. It is simply furnished, and contains a reception and reading-room, and the offices of the State Commissioners.

Kansas and Colorado.—These States share between them a large Gothic frame building, the ground-plan of which is in the form of a Greek cross. It stands immediately back of the New Jersey Building, on the slopes of Belmont valley. Each arm of the cross is one hundred and fifty feet in length. The interior is handsomely fitted up, and is devoted to a special display of

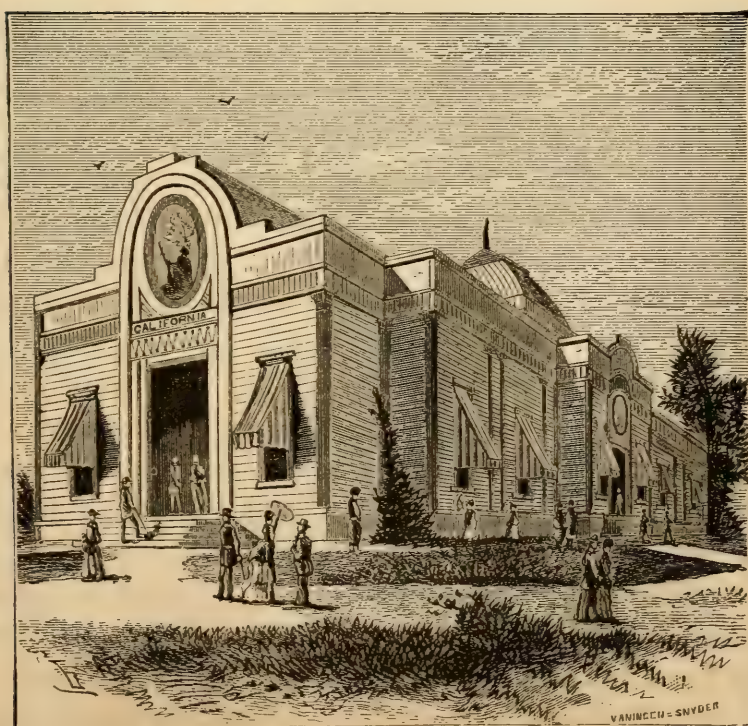
the agricultural and mineral resources of the States of Kansas and Colorado. The former State occupies the principal portion of the space.

The great seal of Kansas is painted in the north wing, and below it is a large map of the State, twenty-four feet long by thirteen feet wide. The agricultural products of Kansas are displayed in the north and east wings; the minerals and birds in the south wing; the insects in cases around the centre; the timber and stone displays are arranged near the east wing. A handsome bronze fountain, presented by the ladies of Topeka, occupies the centre, under the dome. Above it is suspended a *fac-simile* of the Old Independence Bell, formed entirely of Kansas products, and designed by Professor Henry Worrell, of Topeka. This bell is eight feet eight inches high, and its diameter at the lower or open end is eight feet nine inches. The outer rim of the bell is formed of wheat, millet, broom-corn, and sorghum. The tongue is formed of a gourd six feet long; the hammer is a bell-shaped gourd a foot and a half in diameter. Around the top of the bell, the inscription, "Proclaim Liberty to all," etc., is formed of millet and flax. The building is surmounted by forty-two flags, representing all nations exhibiting here, and presented by the ladies of Leavenworth. The entire building is surrounded by a wide portico, affording seats and shade. In one of the triangles formed by the intersection of the wings of the building there is a neatly furnished reading-room, where files of Kansas newspapers are kept. Opposite to this is the office of the State Board. These afford a quiet resting-place for visitors.

The display of agricultural products is labelled, giving the name of the county where grown, and by whom grown. The yield per acre is recorded in the books of the State Board, and can be ascertained on application. By reference to the large map in the north wing, visitors can ascertain the section in which any product exhibited is grown. There is wheat on exhibition the stalks of which are from five feet to six and a half feet high, with heads from three to six inches long; the corn is from thirteen to seventeen and a half feet in height,



MICHIGAN STATE BUILDING.



CALIFORNIA AND NEVADA STATE BUILDING.

with ears from eight to ten feet from the ground; oats from five to six and a half feet high; rye from five to seven feet high; broom corn over eighteen feet high; blue grass three feet four inches high; fourteen different varieties of wild grass, commencing with the buffalo grass, six inches high, and ending with blue-stem prairie grass, over ten feet high—too big for hay and not quite large enough for cord wood; clover from four to five feet high; ears of corn from twelve to fifteen inches long; one stalk of corn with thirteen ears upon, and another with seven; and many other products showing an equally remarkable growth. A fine display is made of the native woods of Kansas.

The State of Colorado exhibits its mineral resources in the west wing of the building. Here are specimens of gold quartz, silver ore, and at the north side is a representation of the Rocky mountains, in which are grouped stuffed specimens of the animals of that region. The State Commissioners have an elegantly furnished reception room at one side.

California and Nevada.—These States have erected a large wooden pavilion on the south side of State avenue, opposite the Maryland Building. It contains a handsome hall, the pillars of which are finished in imitation of the native woods of the Pacific coast. A special exhibit is made of the agricultural and mineral resources of these States. The building also contains the offices of the California and Nevada State Commissioners.

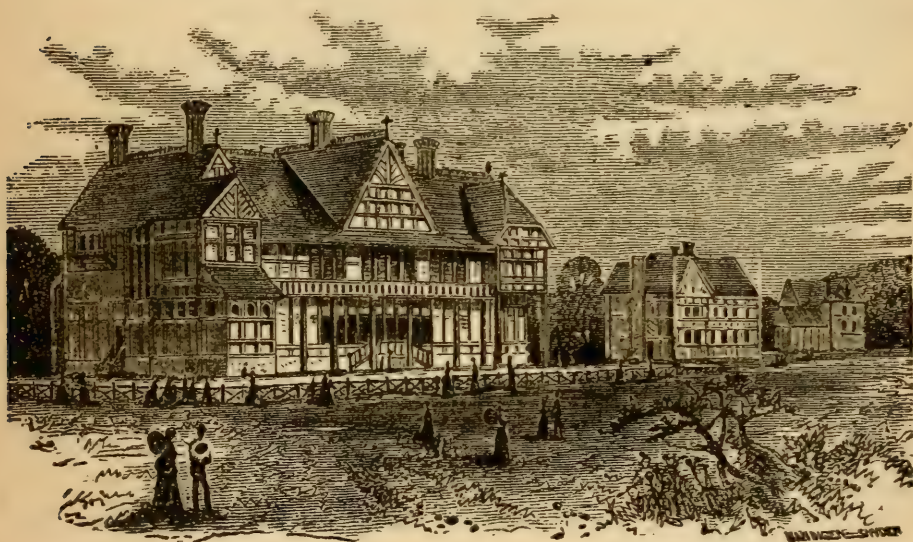
All the State Buildings have large registers in which visitors from the respective States may record their names and addresses. Nearly all are provided with files of the State newspapers, and with baggage and coat rooms, where visitors may leave their valises, bags, and useless wraps, without charge. A number have special post-offices, and at all visitors may find facilities for writing and despatching letters. They can also have their letters sent to their State Buildings during their visits to the Exhibition.

The Philadelphia City Building stands at the northern end of the bridge over Lansdowne valley, and opposite the eastern end of Horticultural Hall. It is a handsome wooden structure, is

elegantly furnished, and is fitted up with reception rooms for the Mayor and Councils of the city of Philadelphia.

The Foreign Buildings.

The British Government Buildings.—St. George's House, as the principal structure is called, and its two out-buildings, stand on the slopes of George's Hill, south of the State Buildings, and constitute the head-quarters of the Commissioners from Great Britain and her colonies. They stand in their own grounds, which are enclosed with a pretty rustic fence, and in the yard



THE BRITISH BUILDINGS.

before the principal edifice is a tall flagstaff from which floats a large English ensign.

St. George's House is of the Elizabethan style of architecture, two stories high, and is surmounted by a roof of red tiles and a multitude of tall chimneys. The building was erected under the superintendence of the English Commission, and the furniture, upholstery and fixtures are from leading houses in England. The building covers a space ninety by twenty-five feet, with projections in front and a verandah and balcony in the rear. The interior decorations and arrangements of rooms, hallways, etc., are designed to reproduce the time of Queen

Elizabeth as nearly as it can now be done. The window panes are small; the rooms have fire-places, high mantels and broad window seats. On the first floor a suite of three apartments finely finished in oak and opening into each other by sliding doors are the "show rooms" of the house. They aggregate fifty-six feet in length by sixteen feet wide. There are about twenty apartments on the two stories, opening into passageways running lengthwise through the centre of the house. Apartments in this building are provided for the use of the various British Colonial Commissioners, from the Dominion of Canada, Victoria, New South Wales, Queensland, South Australia, Tasmania, New Zealand, Cape of Good Hope, Jamaica, Bermuda and the Bahamas. In the two adjoining houses there are accommodations for thirty-eight persons who are attached to the Commission. The British Buildings are among the handsomest in the Exhibition enclosure. They are the private residence of the Commissioners, and are not open to the public.

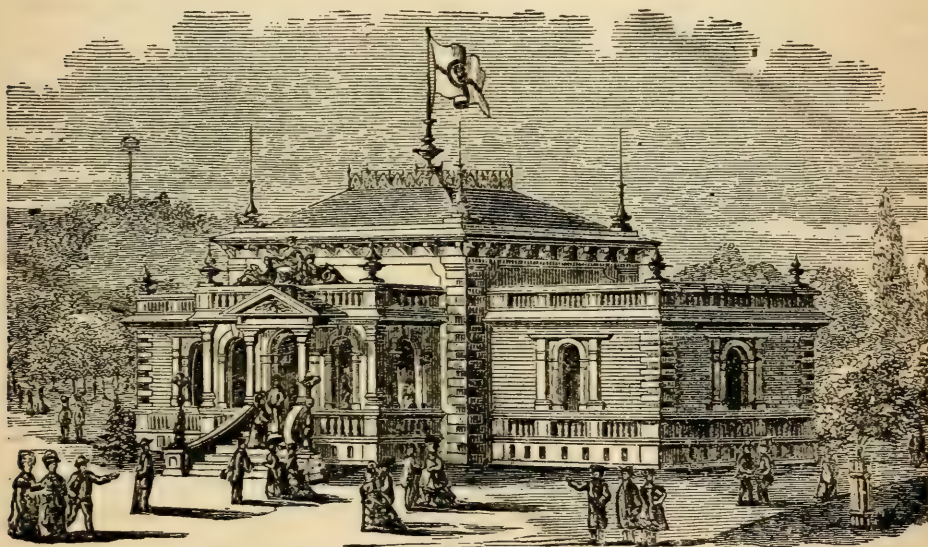
The French Government Building stands north of the Main Building and east of Memorial Hall, near the entrance gate which faces the Reading Railroad Depot. It is sixty feet long by forty feet wide, and is built entirely of brick and iron, the facing being highly ornamental. The top is of glass and iron, and the entrance is finished with iron.

The building is intended for an exhibit of the public works of the French Republic, and the articles displayed within it consist of models, charts, and drawings of bridges, aqueducts, railways, docks, and improvements to navigation. There are many large and elaborately executed charts and models which illustrate the system of supplying the towns and cities of France with fresh water, and to these are affixed descriptions in both French and English. "One of the largest and most interesting models shows not only the great aqueduct at Marseilles, but the same work in the process of construction, with steam derricks, temporary railways on trestle-work, and all other appliances necessary for such an undertaking. Among the more important exhibits in the road section are models and charts of the viaduct of Dinan; the bridge of Arcole, on the Seine, Paris; the great

swing bridge at Brest. The model of the last-mentioned work is over eight feet long, and is said to be a perfect reproduction of the original, even to the most minute details. The bridge of St. Sauveur, the iron viaduct of Busseau d'Ahum, the bridge of Chalonnnes, and the viaduct of the Point de Jour, are all represented in the same way, and all attract much attention, not only from engineers, who can appreciate their construction, but from the general public, who are only supposed to be capable of admiration. The new Paris terminus of the Orleans Railway is shown by a finely-finished model of the station, sidelings, guard-houses, signal offices, etc., and near this is a collection of lithographs exhibiting the various types of carriages, wagons, passenger and freight cars, and locomotives used by the French. The plan of navigation between Paris and Auxerre is illustrated by general charts and models of longitudinal sections. The barrages of the Upper Seine, which consist of two parts, a navigable passage and a wier, the movable trestle barrage at Marlot, the improvement of the Seine from Roan to Havre, and the canal bridge on the Albe, are all represented by finely-carved models. One interesting section is devoted to maritime works about the various sea-ports, including the lock of the port of Dunkirque, port of Havre, and basin of the citadel, wonderful caisson of the coffer-dam in the basin at Brest, the port and lock-gates at St. Nazaire, the basin-port at Bordeaux, and the ports of Bayonne and Marseilles. The French light-house system is fully illustrated, both by models and charts, there being several beautiful models (five to eight feet in length) of the New Caledonia light-house, and the light-houses of Heaux-de-Breliat, Le Tour, La Banche, the Borges, and St. Purne-de-Royan. In connection with these are displayed the various kinds of lighting apparatus in use, showing lamps of the four grades, and also a full exhibit of other signals of various kinds, such as buoys, beacons, etc. The French system of life-saving service is shown in another section, and still in another is a geological map of France and illustration of the beds of phosphate of lime known or worked, with full descriptions of mining and machinery. The process

of elevating and distributing water is shown not only by the aqueduct of Roquefavour, at Marseilles, but the barrage and reservoir of the Turens, and the elevating machines at Conde for the supply of the canal from the Aisne to the Marne. On the north side of the building is hung a large, handsome map, showing all the carriage and railroads of France, and the walls of the building are covered with lithographs of all the more important works of the government."

The French Stained Glass Pavilion is situated near the building just described, and is designed especially for the exhibition of stained glass. Here are three magnificent windows destined for the Roman Catholic Cathedral in New York.



BUILDING OF THE GERMAN EMPIRE.

The French Ceramic Pavilion is situated on the northern slope of Lansdowne valley, west of the German Government Building. It is constructed of iron, glass and tiles, and is devoted to an exhibit of tiles, porcelain, and pottery.

The German Government Building stands on the northern slope of Lansdowne valley, at its head, and east of Belmont avenue. It is built of brick, is stuccoed in imitation of stone, and is an attractive structure in the renaissance style of architecture. It is eighty-two by forty-two feet in size. A spacious portico leads into the main hall, which is handsomely finished

in stucco work, and the walls and ceiling are highly frescoed. This hall serves as a reception and reading-room. On one side of it are the offices of the German Commission, and on the other the ladies' and gentlemen's parlors. The building is the head-quarters of the Imperial German Commission, and is intended as a rendezvous for visitors from the German Empire.

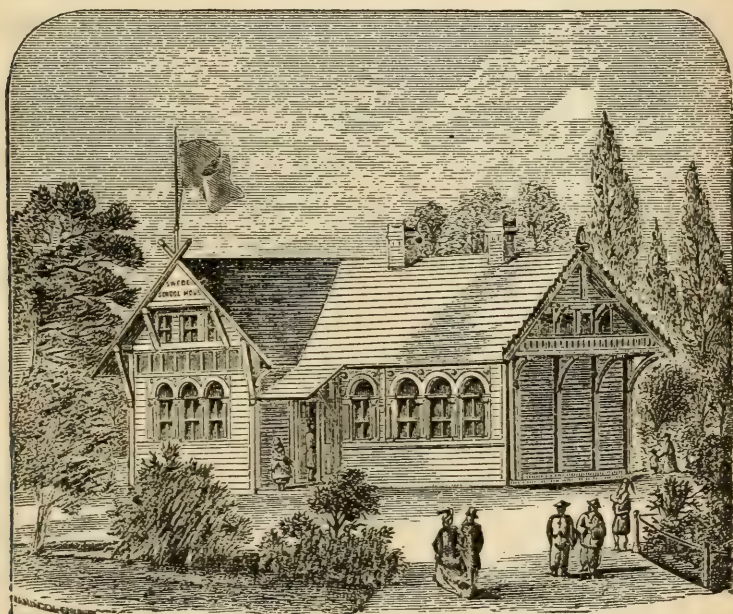
The Spanish Government Building is a large frame structure, situated on the slopes of George's Hill, west of the Total Abstinence Fountain. It is a large wooden edifice with a basement beneath it, and is eighty by one hundred feet in size. It contains a handsome display of models and drawings of the public works, fortifications, and historical buildings of Spain, exhibited by the Spanish government. It is similar to the French exhibit referred to above.

The Spanish Guard House adjoins this hall, and is constructed of wood. It is octagonal in shape, about fifty feet in diameter, and is occupied by a detachment of Spanish engineers, who have charge of the various exhibits of the kingdom. Immediately in the rear of it is a long shed with Moorish arches along the sides, which are closed by light curtains. This is occupied by the Spanish soldiers as a kitchen and mess-room.

The Portuguese Government Building is a plain wooden cottage, and is situated on the southern slope of the Lansdowne valley, east of Agricultural avenue. It is furnished simply, and serves as the head-quarters of the Portuguese Commission, and as a place of resort for visitors from Portugal.

The Swedish School-House is a pretty little building constructed of native woods. It was built in Sweden and brought over to this country in sections. It is one story in height, and is situated west of the Carriage Building and north of the building of the Department of Public Comfort. No paint is used in the building, but the native wood shows everywhere, fresh and brought to a high polish. The building is a model of the public or national schools of Sweden. It is fitted up with the furniture used in such buildings, and with the philosophical and other apparatus prescribed for the higher schools. Specimens of the text-books and books of reference used are

shown, and there are models exhibited here of the great schools of the cities of Sweden. Education in Sweden is compulsory, and the children of the poorer classes are furnished with a good common school education at the expense of the state. For those who desire to avail themselves of such privileges higher schools are provided, many of which are designed to fit the pupil for some particular trade or profession. The neatness and order of this little building are particularly noticeable, and the practical nature and thoroughness of the course are well



SWEDISH SCHOOL-HOUSE.

shown by the exhibit made herein. The work of the technical schools is shown in the Main Exhibition Building, and has been alluded to elsewhere.

The Canadian Log House is exhibited by the government of the Dominion of Canada. It is situated near the British Buildings, north of the Total Abstinence Fountain, and is forty by sixty-four feet in size. It is constructed of logs and timber of every variety, and represents the portal of a classic temple. It is unique and attractive, and its summit, to which visitors are admitted, commands one of the best views of the Exhibition grounds.

The Brazilian Government Building stands on a wooded knoll on Agricultural avenue, east of the German Government Building. It is built of wood, octagonal in form, and has a light open piazza around it, the roof of which forms a balcony. A turret-like room is built over the main structure, and at every point are staves for flags. The main entrance faces the south, and opens into a large hall which extends the whole depth of the building. Two rooms open upon the hall on each side. They are used for the offices of the Brazilian Commission and reception rooms for visitors. The house is handsomely furnished, and is one of the pleasantest and most attractive connected with the Exhibition.

The Japanese Dwelling is situated on the eastern slope of George's Hill, north of the Spanish buildings. It is built of wood, is a low structure, two stories in height, and is covered with a roof of heavy tiles of an ornamental shape. The sides of the building are made of movable panels, over the entrances are curiously carved timbers, and the grain and finish of the wood are very beautiful. The interior is richly furnished. Carpets of an elegant design cover the floor, the rooms are fitted up in a style of elegant simplicity in the Japanese manner, and the walls are hung with finely-woven curtains of vegetable fibre, which, while they screen the rooms and shut out the sun's rays, do not exclude the air. The building is the private residence of the Japanese Commissioners, and visitors are not admitted to it.

The Japanese Bazaar stands immediately north of the building of the Department of Public Comfort. The grounds around it are enclosed, and are laid off as a garden in the Japanese style. The building is a low, rambling structure built around three sides of a court, is constructed entirely of carved wood, and is covered with a roof of heavy corrugated earthen tiles. The northern side is left almost entirely open, the only protection against the weather being the overhanging eaves and paper curtains. The ceilings, walls and floors are painted in imitation of tile work, and many of the counters on which the goods are displayed are richly ornamented and gro-

tesquely carved. The building is intended for the sale of Japanese articles, consisting chiefly of antique bronzes, curious specimens of porcelain and pottery, wood and ivory carvings, and lacquered ware. The majority of the attendants of the bazaar wear their native costume. The duties have all been



THE JAPANESE DWELLING.

paid on the articles for sale here, and visitors may carry their purchases away with them.

The Turkish Coffee House and Bazaar is located on the Avenue of the Republic, north of Machinery Hall. It is a

large and richly ornamented pavilion, with a dome-like roof surmounted by the crescent and the star, and with a wide portico deeply set in the sides of the building at the northern and southern ends. The sides are filled with long, pointed windows. The building is richly decorated in crimson, blue, and gold, and is exceedingly gaudy. Opening upon the porches are four small bazaars, in which a large stock of pipes, carpets, rich dresses, swords, daggers, jewelry, and other articles from the Turkish empire are sold.

The café occupies a large and well-lighted room in the centre of the building, like which it is octagonal in shape. Above is the ornamented dome-like ceiling, painted in Turkish colors and ornamented with Turkish designs. A luxurious divan or lounge runs around the sides of the room, and tables and chairs are scattered about. The high, breezy-looking windows are hung with heavy curtains handsomely embroidered. Pipes are here in abundance, and you may enjoy the happiest of smokes for a mere pittance. Coffee is made and served here in the peculiar Turkish style, the cups being the most fragile shells of exquisite porcelain, placed in silver holders. At one corner of the room is a brazier with a charcoal fire in it. When a visitor orders coffee the attendant places a spoonful of sweetened ground coffee in a silver dipper about as large as the cup from which you are to drink, and then adds hot water. He places the dipper over the fire in the brazier and allows the mixture to come to a boil, and then turns it out, thick and as strong as brandy, into your cup. Turkish liquors and preserves are also sold here. The attendants are all Turks and dress in their native costume. The building is under the control of the Turkish Commission.

The Tunisian Coffee House and Bazaar stand on the north side of Fountain avenue, north of Machinery Hall. The coffee house is octagonal in shape, is capped by an eight-panelled and much elongated dome, and is ornamented with odd designs panelled in red, blue and black, and relieved with numerous intersecting bars of green and gold. The windows of the building are set high up in the sides, and are very small, but

the roof is contrived so as to keep up a constant circulation of air. The café is an elaborately ornamented room, supplied with tables, chairs and divans, and at one end is a raised and cushioned platform, on which musical performances are given. Coffee is made and served here in a manner similar to that employed in the Turkish café. The attendants are Tunisians, and wear their native dress.

The *Bazaar* adjoins the café on the west, and is a smaller structure—a mere shed supported by slender pillars. On a high counter which runs around the inside of the building a Tunisian merchant displays a collection of Eastern wares for sale.

In the rear of these buildings the Bey of Tunis exhibits two black tents of camel's hair cloth, such as are used by the Bedowin Arabs. They are intended to show the mode of life in the desert.

On the opposite side of Fountain avenue, a little to the west of the Tunisian buildings, are three small wooden booths. These are Eastern bazaars on a small scale. The most westerly is for the sale of sponges from the principal Turkish sponge fishery; the next, going east, is the "Jerusalem Bazaar," and the last the "Bethlehem Bazaar." In the last two some enterprising Syrian merchants offer for sale articles of olive wood and mother-of-pearl from Jerusalem, Bethlehem and other parts of the Holy Land.

To the east of Belmont avenue, near the German Government Building, is the *Moorish Villa*, a quaint little structure. The building is very small and unattractive without, and has little stained glass windows set in the walls near the top. The interior is richly ornamented with tile work of different colors. Passing through the entrance hall the visitor finds himself in a square room, bordered at each corner with slender columns, decorated in keeping with the walls and ceiling. Overhead is a glass dome, which admits enough light for the centre, but leaves the remainder of the building in a cool darkness. To the right is seen through the dim light a small counter covered with jewelry and oriental trinkets of all kinds, behind which

are seated two white-turbaned and baggy-costumed Moors, both too intent on making sales to notice the curious glances of their visitors. Among the larger articles offered for sale are Arabian guns, swords, daggers, stilettos, and strangely carved knives with jewelled handles. On the left is a bed-room about eight feet long and four feet wide, and in this is a nicely made-up couch with satin pillows and handsomely embroidered spread. A small parlor, with a long, low divan and a few elegant ottomans, adjoins this, while a step farther on is another and larger parlor furnished in the same way, and two more bed-rooms of about the same size. The walls and floors of all these inner rooms are covered with heavy, dark-colored tapestry, and the ceilings are panelled in imitation of mosaic work of the most intricate devices.

The Chilean Government Building stands west of Machinery Hall, and is occupied by a display of the amalgamating machinery used in the mines of Chili.

On the north side of Fountain avenue, east of the Tunisian Café, is a relief plan of Paris, constructed by Colonel Liénard, a distinguished engineer officer of the French army. The buildings consist of separate blocks or models, and stand out from each other. The formation of the land is shown and a fair general idea of the French metropolis is afforded by this plan.

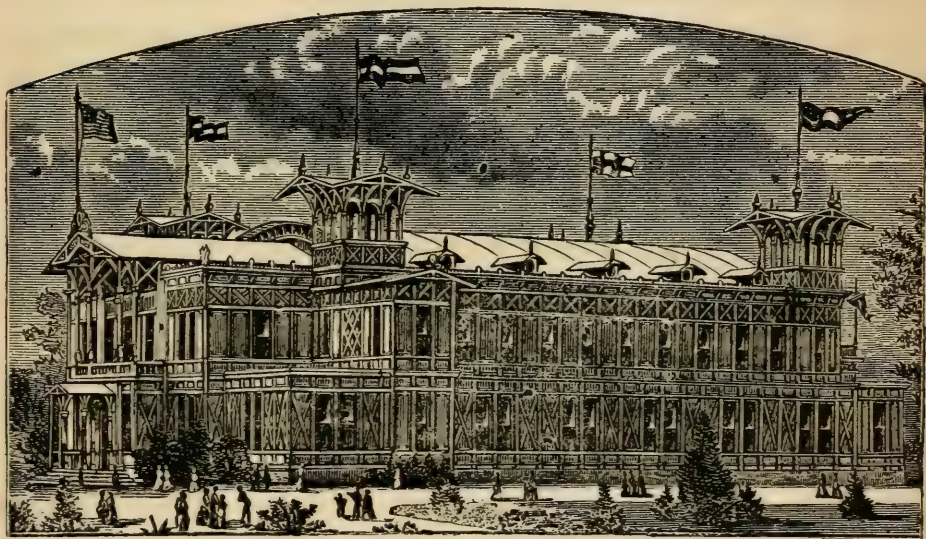
Buildings of the Centennial Commission.

The United States Centennial Commission Offices are located on the right of the main entrance to the Exhibition grounds at Elm and Belmont avenues. They are established in a low one-story frame building with a wide piazza running around it. The building is painted a light brown, and is ornamented with elaborate lattice work. The business offices of the Centennial Commission are located here.

The Centennial Board of Finance Building is situated on the left of the main entrance to the grounds, immediately opposite the Centennial Commission building, and is an exact copy of that structure. It contains the business offices of the Board of Finance.

The Centennial National Bank is a one-story wooden structure of tasteful design, and is situated on Elm avenue, immediately to the east of the main entrance to the grounds. It is the medium through which the financial affairs of the Exhibition are transacted, and offers banking facilities to exhibitors and visitors.

The Judges' Hall.—This is a large and handsome wooden pavilion, one hundred and fifty-two by one hundred and thirteen feet in size, and is situated on the Avenue of the Republic, north of the Main Exhibition Building. It is tastefully ornamented without, and constitutes one of the most attractive



THE JUDGES' HALL.

structures connected with the Exhibition. The interior is handsomely fitted up. In the centre is a large hall eighty by sixty feet in size, with a gallery running around it. Surrounding this central hall is a corridor upon which open ten committee rooms and four private rooms for the judges. The building is for the use of the international juries charged with the determination of the prizes to be awarded by the Centennial Commission.

The Medical Department is intended to provide immediate and gratuitous medical assistance to persons injured or taken ill in the Exhibition grounds. It is provided with a plain but comfortable building situated on the north slope of Lansdowne

valley, near its western end, about equidistant from the great halls of the Exhibition. It contains two wards, one for female, the other for male patients, with three beds in each ward. An experienced resident physician is in charge, with competent attendants, and an ambulance is provided for the removal of patients to their own homes or to the city hospitals.

The Sawmill.—This is a substantial shed, and is located on Fountain avenue, west of Machinery Hall. It is two hundred and seventy-six by eighty feet in size, with a boiler house forty-eight by thirty feet in size. It contains the exhibits of direct-acting steam saw machines and gang saws.

Barracks.—There are five one-story and one large two-story frame buildings located at prominent points in the grounds. These are the barracks for the Centennial Guard, or special police force of the Exhibition. These buildings are also police stations and are provided with cells for prisoners. The two-story barrack, which is located at the southwestern extremity of the grounds, is provided with a court-room and a magistrate's office.

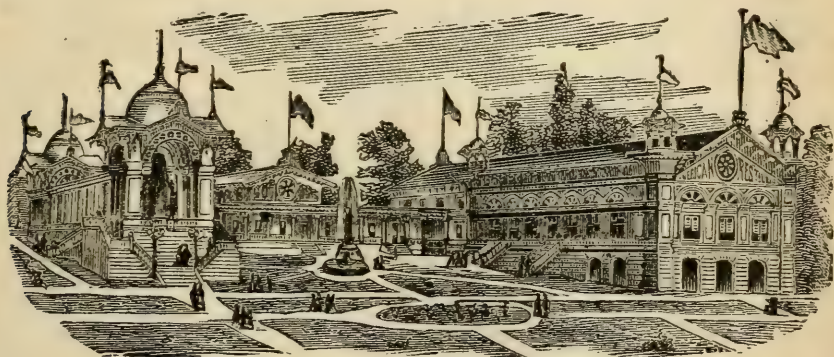
Fire-Engine Houses.—These are two in number, and are of wood and one story in height. They contain halls for the steam fire-engines stationed in them, halls for the horses, and quarters for the men. One of these buildings is at the northeast corner of the Main Exhibition Building; the other at the intersection of Lansdowne drive and Belmont avenue. They are supplied with steam fire-engines, hose carriages, ladders, and Babcock extinguishers on wheels and portable.

The Restaurants.

Besides the restaurants and lunch-rooms in the Exhibition buildings there are seven first-class restaurants located within the grounds. These are among the largest and most completely appointed eating-houses in the United States, and are required by the Centennial Commission to conduct their affairs in such a manner that visitors to the Exhibition may be able to obtain the best fare at moderate prices.

The American Restaurant is the largest and handsomest of

all these establishments. It is situated on the northern side of Belmont valley, immediately south of Agricultural Hall, and within a short distance of Horticultural Hall. It is three hundred by two hundred feet in size, and is built around three sides of a court which is open on the south. This court-yard is one hundred and twenty-five by one hundred and sixteen feet in size, and is handsomely turfed and ornamented with fountains and flowers. A wide piazza extends around the building, opening upon the court. There is a large and handsome dining-hall at the east end of the building, which can seat six hundred guests, and on the opposite side of the building is a pavilion for the sale of ice cream, etc. Five thousand guests can be seated at once under the roof of the restaurant. Meals are served either



GRAND AMERICAN RESTAURANT.

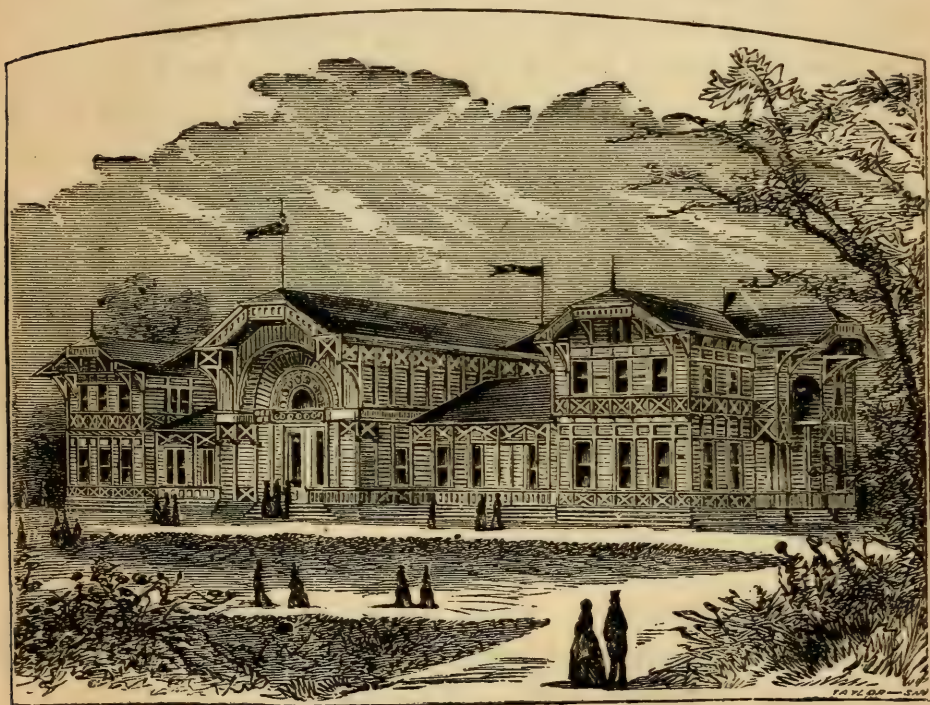
à la carte or *table d'hôte*. There are private rooms for suppers, dinners, etc., and the establishment possesses every facility for entertaining a large number of guests. It is conducted by Messrs. Tobias & Heilbrunn.

The Southern Restaurant is situated on Belmont avenue, north of the Woman's Building. It is one hundred and eighty-five feet long and ninety-four feet deep, and has four large dining-rooms and sixteen private rooms for parties or others who wish to dine away from the bustle of a large, crowded hall, several parlors, a reading-room, etc. It is intended as a place of rendezvous for visitors from the Southern States, and the waiters are all colored men. The proprietor is Edward Mercer, of Atlanta, Georgia, a gentleman well known through-

out the South as "a man who *can* keep a hotel." The establishment can accommodate one thousand guests.

There are two French restaurants within the grounds.

The Restaurant of the Trois Frères Provençaux is situated on the west side of Belmont avenue, on the north shore of the lake, and south of the United States Government Building. It is a simple one-story wooden building, one hundred and seventy-seven by one hundred and ten feet in size, and stands in the midst of tastefully laid-off grounds. It will accommo-



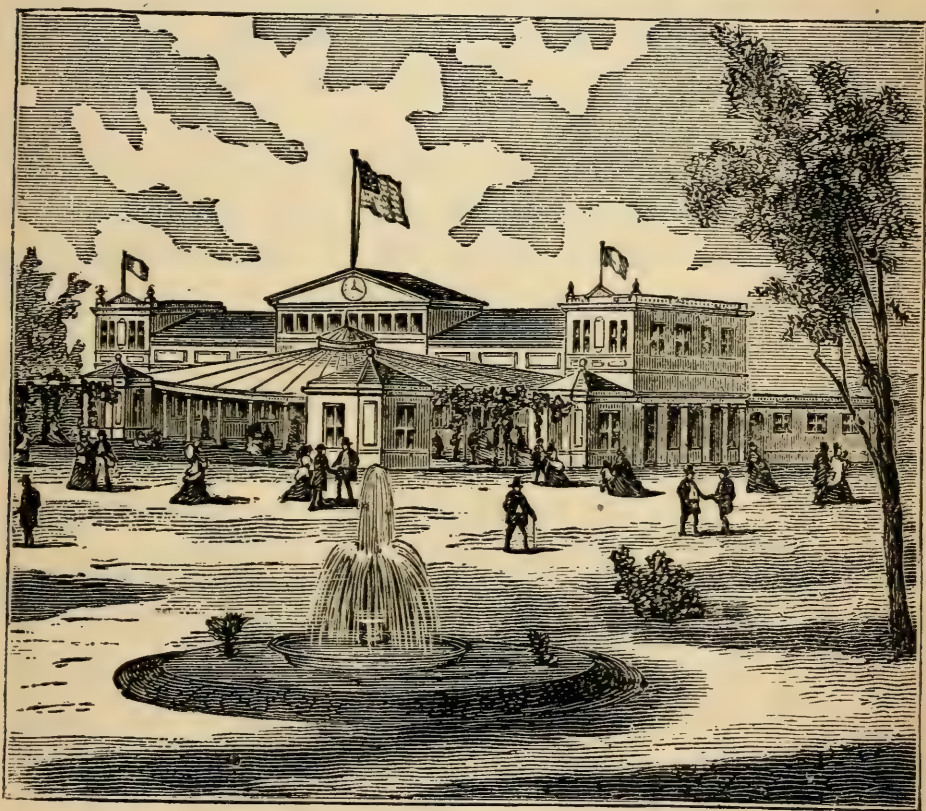
THE SOUTHERN RESTAURANT.

date about one thousand guests, and is a duplicate, with respect to its management, of the famous restaurant at Paris, after which it is named. Louis Goyard, of Paris, is the proprietor.

The Restaurant Lafayette is a handsome two-story frame structure, located on the south slope of Lansdowne ravine, north of the Carriage Building. The second story is arranged as an open-air pavilion, and the building contains a number of public and private dining-rooms. It is one of the handsomest

eating-houses in the grounds, and is conducted on the French plan. It will accommodate about one thousand guests. Paul Sudreau, of Philadelphia, is the proprietor.

The German Restaurant, or, as it is better known, "Lauber's Restaurant," is situated on the south side of the Belmont valley, a few yards northeast of Horticultural Hall. It consists of a large dining-hall with a lofty dome, elaborately frescoed and fitted up in elegant style, and three wings enclosing a large



RESTAURANT OF THE TROIS FRÈRES PROVENÇEAUX.

space which is floored over and covered with canvas. In this court tables are set, and beer and German wines are served. The building is two hundred by one hundred and fifty feet in size, and is handsome in design and convenient in arrangement. It will accommodate about twelve hundred guests. The proprietor is Philip J. Lauber, one of the most popular and enterprising citizens of Philadelphia. It may be added here that

this has been the most successful and best patronized establishment within the grounds.

The Vienna Bakery and Café, Fleischmann, is a tasteful structure of wood, one hundred and forty-six by one hundred and five feet in size, situated immediately east of the French Government Building, near the entrance gates opposite the Reading Railroad Depot. It is the property of Gaff, Fleischmann & Co., of Blissville, Long Island, New York, and is designed to exhibit the advantages of compound yeast in baking. It is fitted up with a bakery in which fresh bread is being constantly baked, and served to customers in the coffee-house which adjoins the bakery.

The George's Hill Restaurant is a frame building one hundred and twelve by seventy-two feet in size, situated in the western portion of the grounds, near the State buildings. It is also called the *Hebrew Restaurant*, as it is designed with especial reference to the wants of the Hebrew visitors to the Exhibition. Talman & Kohn are the proprietors.

To the southwest of the George's Hill Restaurant is a small pavilion erected by Jacob Kohn, of New York. Here are sold the delicious wines and liquors of Hungary, which are served by attendants in the national dress of that country.

The Dairy.—This is a tasteful structure, built of logs, and is open in the main story, having only the roof above it. A frame pavilion has been erected to the west of it, and is used for the same purpose. The buildings stand on the north slope of the Lansdowne ravine, southwest of the Horticultural Hall, in the midst of grounds handsomely laid out as a garden. They are owned by an association of dairymen residing in Philadelphia and the adjoining counties, and in them fresh milk, cream, buttermilk, ice cream and refreshments of the lighter kind are served out to visitors.

The Tea and Coffee Press Building is a handsome edifice, with a tower at each end, situated on the north side of Belmont valley, south of the Agricultural Hall. It is the property of Mr. Jonathan Miller, and is designed to show a new method, invented by him, of making tea, coffee and other extracts, by

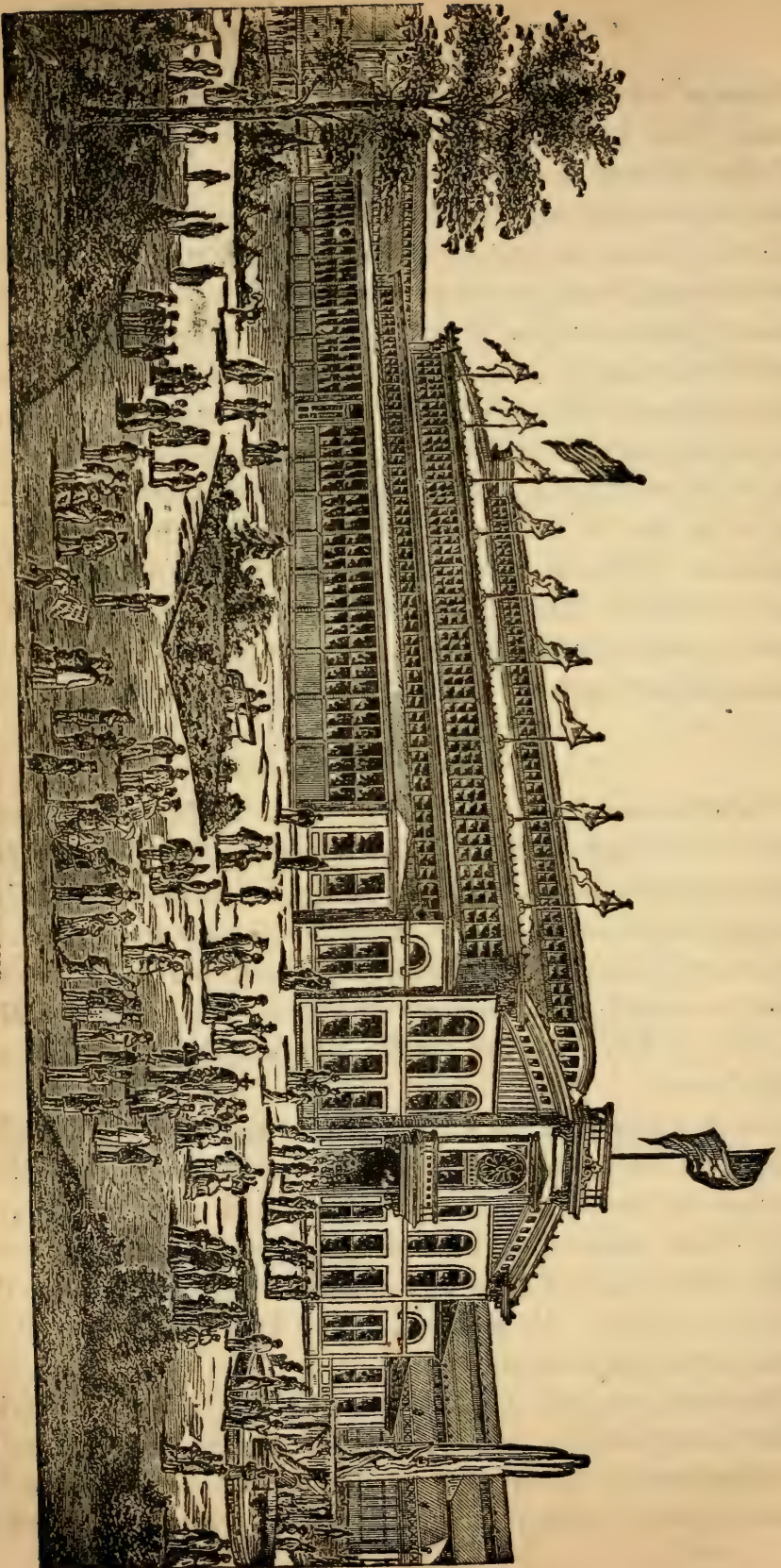
means of pressure caused by the expansion of the materials used. This invention is one of the most important discoveries of the day, and is considered by chemists and other scientific men to be a national benefit. The process of making tea and coffee is shown to visitors by the inventor and his assistants, and attracts many spectators, especially housekeepers, to whom it is of great value, as it not only gives them a fine article of coffee and tea and a quick mode of preparing them, but economizes the materials used. The value and power of the process of making extracts is shown by the fact that the entire properties to be extracted are taken out in a short time by cold water, and when hot or boiling water is thrown into the press, the expansion of the material is so great as to prevent the generation of steam. Tea and coffee made by this process, and deliciously cooled with ice, are served out to visitors at a small cost, and the "presses" are sold at moderate prices.

Individual Enterprises.

The Shoe and Leather Building.—This building was erected by the Shoe and Leather Trade of the United States. It is built of wood, is very plain in design, is one story in height, and is three hundred by one hundred and sixty feet in size. It is situated south of Machinery Hall, and the main entrance faces the grand plaza between Machinery Hall and the Main Building. At this end of the building are the offices and committee rooms.

The building contains a large hall, at each end of which is a gallery, and smaller rooms at each extremity of the edifice. The hall is handsomely decorated with flags and bunting, each truss which supports the roof being draped with red, white and blue bands. As these are very numerous, the effect of the display is very fine. At each end of the hall are elaborate decorations appropriate to the place.

The hall contains a complete exhibit of all the materials which enter into this large American industry, from the heavy and intricate machinery for cutting and finishing the leather down to the blacking for polishing it. Nearly six hundred



THE SHOE AND LEATHER BUILDING.

American houses take part in this exhibit, and a few manufacturers from England, Russia and Germany.

The largest display is made by Massachusetts. The exhibits from this State exceed those from all the other States together. Newark, New Jersey, is well represented and occupies a large space, and both New York and Philadelphia make an excellent appearance.

The central aisle is taken up on both sides with a display of boots and shoes for men, women and children. The goods are contained in handsome glass show-cases, and range in character from the heaviest to the lightest and finest work. The variety of shoes is very great. One manufacturer exhibits over five hundred distinct patterns. Another exhibitor has arranged his collection with reference to the historical interest which fashion has given to the shapes and finish of coverings for the feet, showing as he does the shoe from 1776 down to the present Centennial year in its differing forms.

At the western end of the main aisle the India rubber manufacturers exhibit their goods, and make a handsome display of the various articles of this material used in commerce.

At the west end of the building is a small room, or hall, containing a fine exhibit of trunks, satchels, and the different leather goods used by travellers. Adjoining this, on the north side of the building, is a display of hardware for trunk-makers, etc.

The south side of the main hall is occupied with a large exhibit of leather. Rockwell & Co., of New York, make a special exhibit of sheep leather, their imitations of Russia leather being so perfect that it is hard for any one but a skilled expert to detect the difference.

On the north side of the hall is a large display of boot and shoe making machinery. Conspicuous among the machines exhibited here is the McKay sewing-machine for boots and shoes, from Boston. This machine is regarded as one of the best in use—if not the very best—and its capabilities for doing the work for which it is designed may be seen in the fact that the company's books show half a million of dollars of royalties on the work done last year. The Tapley Heel-Burnishing

Machine Association, of Boston, exhibit one of their admirable machines, of which four hundred are now in use. The Union edge-setting machine is an interesting object. It is said to do its work in one-half the time it can be done by hand; and the Plummer's Union whitening and buffing machine performs the labor of six men. The American Shoe-Tip Company, of Boston, exhibit an interesting machine for quilting boots and shoes with wire. Many of the machines are in operation, and their workings may be seen by visitors.

The Shoe and Leather exhibit is highly creditable, and gives an admirable idea of the magnitude and importance of this great American industry and of the skill and ingenuity exercised in it.

The Brewers' Industrial Exhibition Building is situated near the northeastern corner of the Exhibition grounds, and immediately east of the Agricultural Building. It is two hundred and seventy-two feet in length and ninety-six feet in width, and was erected at a cost of \$30,000. It is a large and conspicuous wooden building. Hop vines are trained along the south front, and the grounds on this side are tastefully laid off as a hop vineyard.

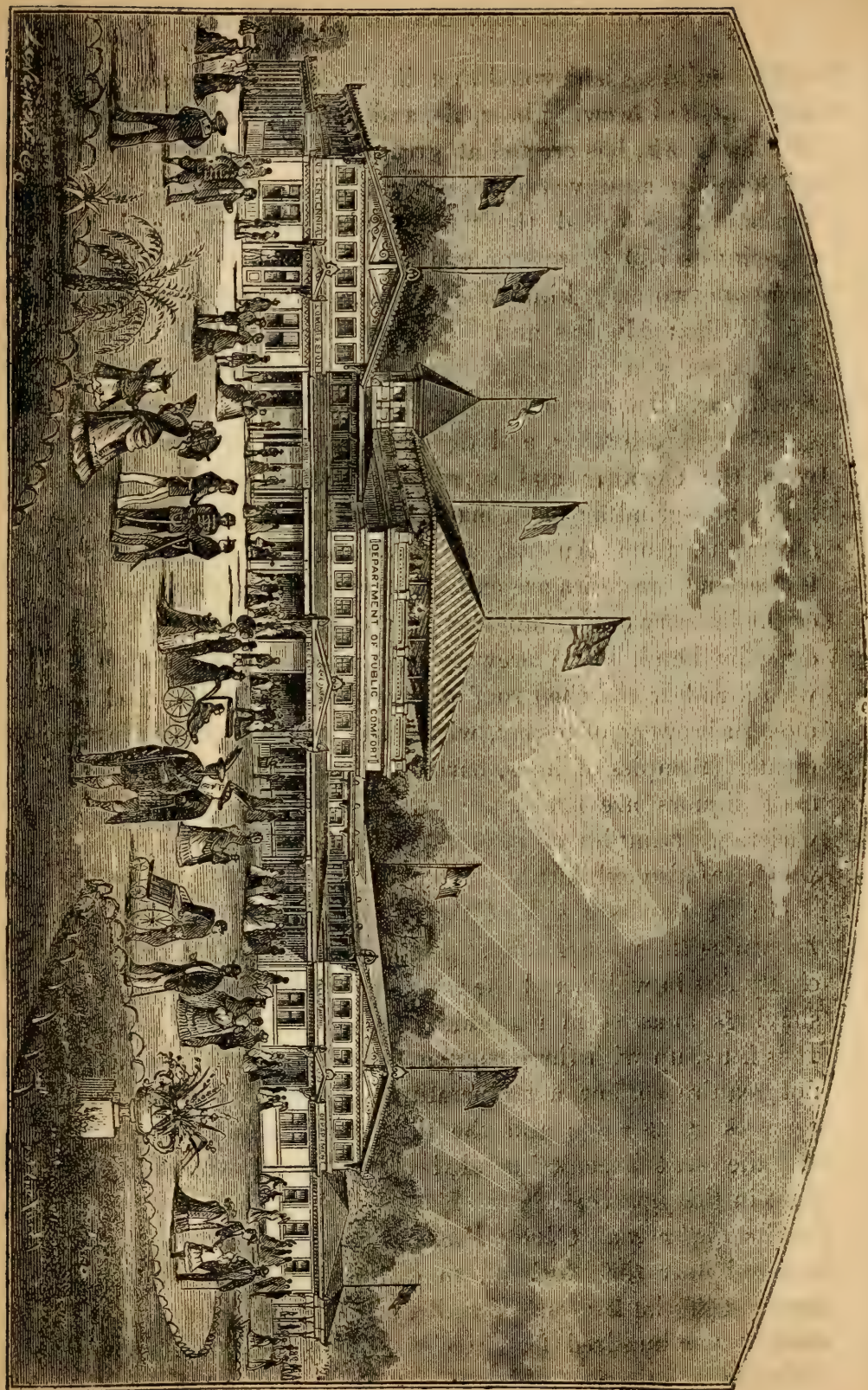
The building contains one large hall eighty-five feet in height, and four smaller halls forty-five feet high. Over the main entrance on the south side is a statue of King Gambrinus. At the rise of the second roof is a beer-barrel ornamented with the flags of all nations, and over each entrance is a handsome design made up of the implements and materials used in the business.

The interior is decorated handsomely with bunting of various colors, and over the eastern entrance is a large trophy surrounding a medallion on which is inscribed the following sentence: "In the year 1863, 1,558,083 barrels of beer were brewed in the United States; in 1875, 8,743,744 barrels were produced from malt liquors, on which a tax was paid of \$9,144,004." Inscriptions in English and German relative to the brewing business are placed on the wall at various points. Near the centre of the hall is an elevator which conveys visitors to the gallery outside of the building, from which a fine view of the Exhibition grounds, the river, and the surrounding country is obtained.

The building is devoted to a display of the processes of making malt, and brewing beer, ale, and porter. Mr. Charles Stoll, of New York, has erected at great expense a working brewery of the most approved plan, containing all the latest improvements. It is called the "Centennial Brewery," and has a capacity of 150 barrels at one time. Opposite to this display there are two malt kilns of full size, one of which was erected by William Hughes and Theodore Bergner, of Philadelphia. The latter is a patent arrangement, and is complete in every particular. In various parts of the building the manner of steeping, germinating, and drying the malt, is shown, together with the cleaning and separating machines. Malt-grinding mills, hop-grinding mash machines, vats, tubs, and beer-cooling apparatus, from Austria, are also shown. Models of malt-houses and breweries are exhibited, and among these is a model of the brewery of one hundred years ago, when all the labor was done by hand. The brewery then was simply a rough shed with a rudely thatched roof of straw. Close by is a model of a modern brewery of to-day, with all its machinery and improvements. Samples of hops, barley, and other cereals from which malt liquors are made, are shown, one firm displaying five varieties. Samples of malt liquors of all kinds, in glass and wood, are also exhibited.

On the northern side of the Brewer's Building is an annex known as the "Ice House." It is seventy feet in length and eighty feet in width, and the walls are double and are lined with shavings to assist in maintaining a low degree of temperature. It is fitted up with three compartments: one for ale, which does not require so low a temperature; a second for beer, which requires great cold; and the third for use as a sample room. All the malt liquors intended for competitive exhibition are kept in this building.

The Butter and Cheese Factory is a large wooden building situated near the northeastern end of the Exhibition grounds and east of the Brewer's Building. It is one hundred and sixteen by one hundred feet in size, and is two stories in height. It contains a special exhibit of the dairy products of the United



States, and illustrations of the processes of making butter and cheese.

The Department of Public Comfort is a peculiar and very important branch of the great Exhibition. As its name indicates it is designed to supply additional comforts and conveniences to visitors to the Exhibition. It is controlled by a company of which Mr. W. Marsh Kasson is the President. The sum of \$20,000 was paid to the Centennial Commission for the privilege of establishing this department, and it was made a condition of the concession that all the accommodations provided by the department should be of the best quality, and that the charges for them should be moderate.

The principal building of the Department of Public Comfort stands on the corner of the Avenue of the Republic and Agricultural avenue. It is a handsome edifice of wood, two stories in height, two hundred and sixty-four by one hundred and twelve feet in size, and consists of a central building with two wings. The central building is used by the department, and contains a large reception-room for visitors, which is abundantly supplied with chairs and sofas, and is free to all who choose to avail themselves of its facilities. A register is kept here, free of charge, in which visitors may enter their names, address in the city, and date of intended departure, so that friends may readily learn of their whereabouts. Special arrangements may be made for the reception of visitors' letters addressed to the care of the Department of Public Comfort. These will be kept until called for, or forwarded to any desired point. Reserved seats at the theatres and principal places of amusement in the city may be obtained here.

At the north end of the reception-hall is a lunch-counter, at which refreshments are sold at moderate prices. Stands for the sale of fancy articles, newspapers, periodicals, etc., are to be found in the reception room, and attached to it are barber-shops for gentlemen, dressing-rooms for ladies, water-closets, lavatories, boot-blackening rooms, and coat and baggage rooms, where baggage and other small articles may be left at a small cost, the owner receiving a check for his property.

In connection with the coat and baggage room are ten sta-

sions, in and about the Exhibition buildings, where articles of wearing apparel, small baggage, bundles, baskets and umbrellas may be deposited and cared for, or checked for delivery to other stations. Stands for supplying newspapers, periodicals, and all the current literature of the day, are provided in the reception room and in and about the different public buildings; stationery, postage stamps, and all conveniences for writing, are also supplied. In the Art Gallery stands for the sale and hire of object and opera glasses are established. Five pavilions for boot-blackening are also located at desirable points about the grounds. At all the coat and baggage stations umbrellas are kept for sale and hire. Telegraphic stations for ordering rolling-chairs and calling messengers of the American District Telegraph Company may also be found there.

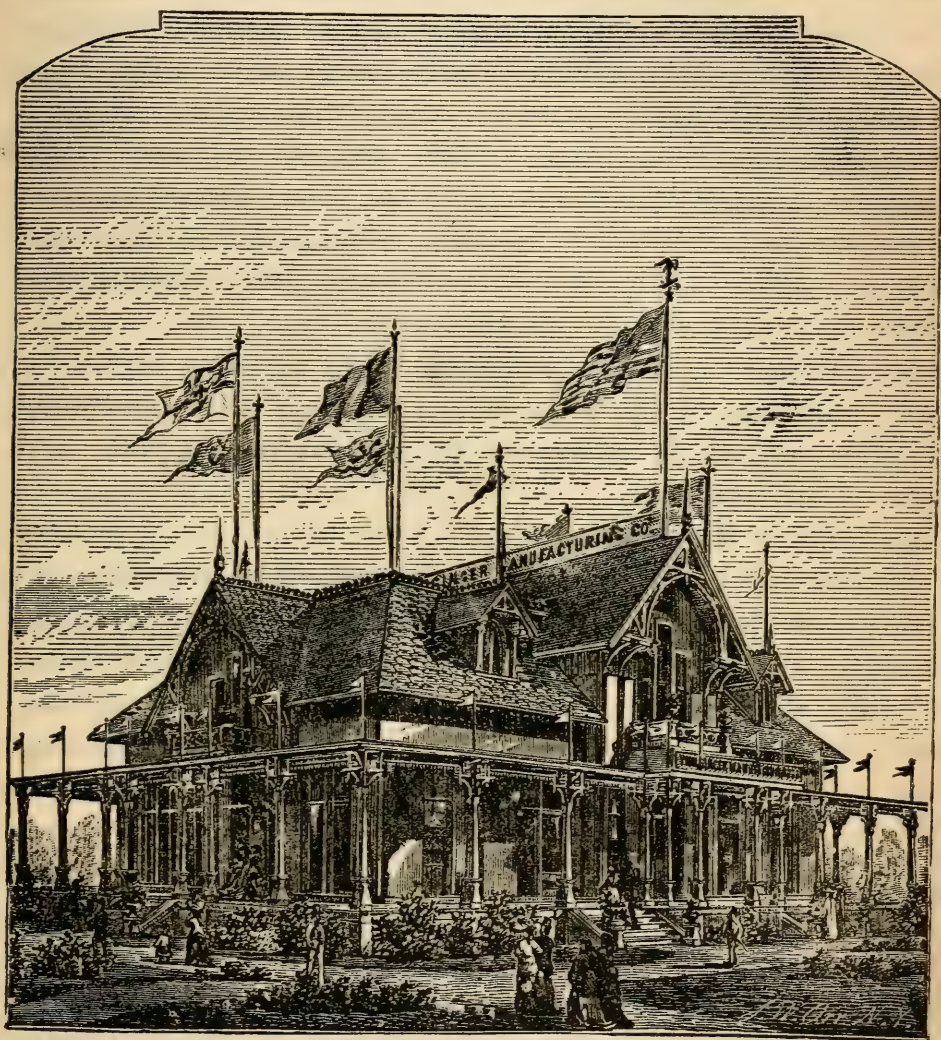
Over the central portion of the building is an open air gallery, which is covered with a canvas awning and is free to all visitors. It is intended, like the reception room, as a place of general resort for visitors.

The eastern wing is occupied by the General Telegraph Office of the Exhibition, also under the control of the Department of Public Comfort. Messages may be sent from here to all parts of the world. The room contains an exhibit of the various instruments used in telegraphing, the greater number of which may be seen in operation.

The western wing is fitted up for the accommodation of the United States Centennial Commission and the members of the press of the country. It contains some of the offices of the Commission and a large and airy hall, which looks out upon the wooded slopes of the Lansdowne valley, and is fitted up with tables and chairs for the use of the army of correspondents and reporters who are daily engaged in making the attractions of the Exhibition known to the public.

The Singer Sewing Machine Building is a pretty frame cottage erected on the south slope of the Lansdowne valley, north of Memorial Hall, by the Singer Manufacturing Company at a cost of \$20,000. It is handsomely frescoed within, and is fitted up in elegant style. It is devoted to a special exhibit of the

Singer sewing machines. Among the novelties on exhibition here are a wax-thread lock-stitch machine, and button-hole and eyelet machine, a book-binding machine, and several others that are new to the public, one of which is capable of making



SINGER SEWING MACHINE BUILDING.

30,000 different styles of stitches. Numerous samples are shown of the work performed with the Singer machine, and these are among the most beautiful and skilful specimens of needlework to be seen in the Exhibition. A register is kept in the reception parlor for the names of visitors. At the close of the Exhibition the company will present to one of the lady visitors

whose name shall be found in the register, the two millionth machine of their manufacture, the choice to be determined by lot. Sixty-one machines, each of a different style, are in operation here.

The Pennsylvania Bible Society Pavilion is located on the north side of the Lansdowne valley and south of the Horticultural Hall. It is a plain structure of wood, oval in shape, and surmounted by a carved roof with a projecting cornice. It bears the inscription, "The Bible without note or comment." The front is ornamented with an open Bible, above which is the text from Jeremiah xxii. 29: "O earth, earth, earth, hear the word of the Lord." Bibles and Testaments, in all the written languages of the world, are sold here at cost.

The "Times" Pavilion is a small frame structure erected by the proprietors of the Philadelphia "Times," as a Centennial business office. It stands on Belmont avenue, opposite and east of the lake.

The Glass Magazine stands on Belmont avenue opposite the lake, and north of the Photographic Association Building. It is forty feet square and two stories in height. It is constructed mainly of plate glass from the works of Messrs. Klautsheck, Thomas & Stuart, of Philadelphia, and is devoted to a special exhibit of plate and window-glass, glass shades, hand mirrors, etc., made by the above firm. All the articles in the building are for sale.

The American Fusee Company's Building is a small plain structure, situated on Lansdowne drive, north of the Judges' Building. It contains an exhibit of the safety match of this company, the head-quarters of which are in New York.

The Centennial Photographic Association Building is the property of the company the name of which it bears. It is a one-story frame building with a wide balcony around it, and is situated on the east side of Belmont avenue, north of the grand plaza. It is one hundred and fifty by thirty feet in size, and contains one room for the exhibition of photographs, and three rooms for photographic manufacture. The company have the exclusive right of making photographs of the buildings and

exhibits, which are on sale here and at various points in the buildings and within the grounds. This is the only place where visitors can have their pictures taken at the Exhibition.

The American Railroad Ticket Office is a handsome building, octagonal in shape, and constructed of wood. It is seventy-five feet in diameter and two stories in height, and is situated on the northeast corner of Belmont avenue and the Avenue of the Republic, immediately west of the Judges' Hall. It is used as a general ticket office for the four great trunk lines of the country—the Pennsylvania, Baltimore & Ohio, Erie, and New York Central railroads. Tickets are sold to all points in the United States, and information furnished respecting routes of travel, rates of fare, etc. A portion of the building is used as the office of the Adams Express Company for the transaction of their Centennial business.

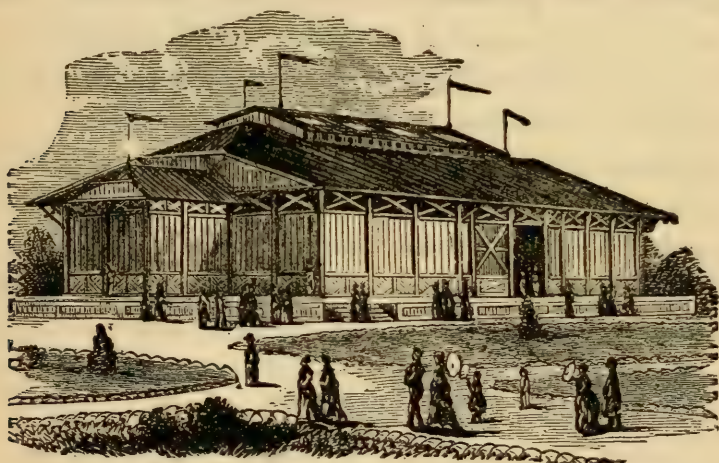
The Bankers' Building is a handsome cottage, painted in dark rich colors, and situated east of the Art Gallery, between the Photographic Annex and the Vienna Bakery. It was built by the contributions of the bankers of the principal cities of the Union and their clerks, and is designed for the exhibition of coins and currency, and as a place of rendezvous for bankers and their families while visiting the Exhibition.

The Empire Transportation Company's Building is a plain wooden structure, seventy by sixty feet in size, situated on the Avenue of the Republic, north of the east end of the Main Exhibition Building. It is built in the style of a railroad freight station-house, and is devoted to an exhibit of the method of transporting "fast freight," as practised by the Empire Transportation Company and its connections. A number of handsome working models of lake steamers, grain elevators, oil tanks, railroad cars and locomotives are arranged around the room, and are in constant operation. They show the system of bringing grain in steamers from the great lakes to prominent points on the great trunk lines, and of transferring it by elevators to the cars which are to convey it to the eastern markets; and also from the cars to the large elevators of the terminal points in the east, from which it is discharged into vessels bound

for foreign ports. A series of working models also exhibits the method of operating petroleum wells, and of shipping the crude oil in tank cars and conveying it to distant markets. The models to be seen here are among the most perfect in the Exhibition, and the display made in this building is as interesting as it is suggestive.

The Burial Casket Building is a one-story frame structure, with turrets, situated on the south slope of the Lansdowne valley, north of the Annex to the Art Gallery. It is devoted to an exhibition of the various styles of burial caskets.

The Gas Machine is an octagonal one-story frame structure,



THE EMPIRE TRANSPORTATION COMPANY'S BUILDING.

fifteen feet in diameter, situated south of Machinery Hall, and is devoted to an exhibit of a new process of generating a fixed illuminating gas. The exhibitor is J. C. Tiffany, of Boston.

Starr's Iron Works are located southwest of Machinery Hall, near the fence which separates the Exhibition grounds from Elm avenue. They are the property of Messrs. Jesse W. Starr & Son, of Camden, New Jersey. The display consists of iron pipes for water and gas, fire hydrants, stop valves, lamp posts, etc. The chief feature is a complete set of gas apparatus for the manufacture and distribution of gas, from the benches and retort house to the gas-holder. Included in the apparatus may be found a set of cast-iron purifiers, with wet and dry centre

valves, and an improved carriage (first introduced by this firm) for removing the lids of the purifiers. Another feature is an automatic compensating governor, circular, multitubular and pipe condensers, jet, spray and cataract washers, with wooden and wrought-iron lime sieves. The exhibit is the largest and most complete made by any of the iron workers of the Union, and reflects the highest credit upon the Messrs. Starr. The extent of the business of this firm may be imagined by the reader when it is stated that their patterns alone are valued at \$250,000.

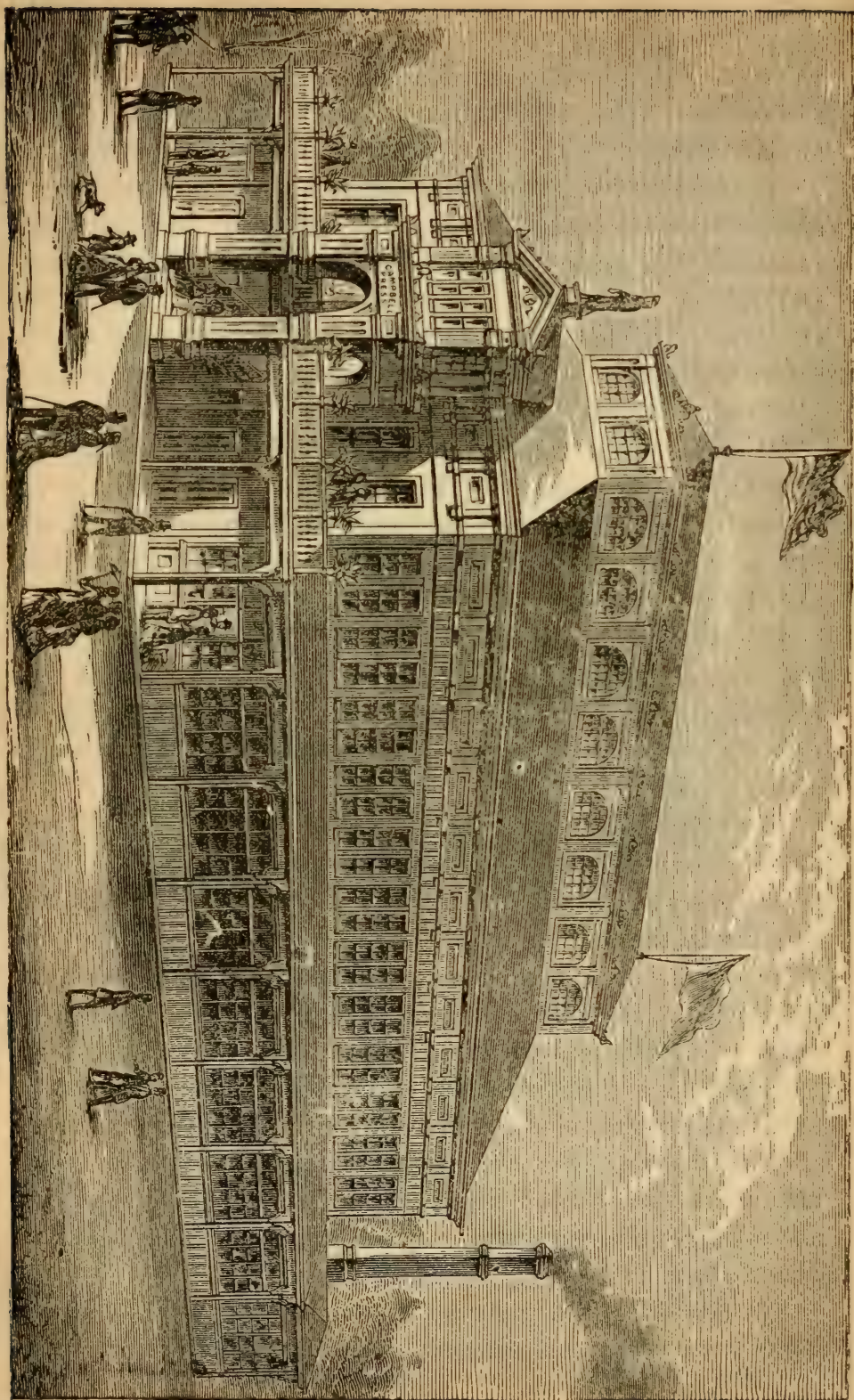
The Gunpowder Pile Driver is exhibited by the Gunpowder Pile Driving Company, of Philadelphia. It is built in the open air, and is situated southwest of Machinery Hall, and affords a practical demonstration of the advantages of driving piles by this process.

The Automatic Railroad is situated west of Machinery Hall, and is exhibited by Charles W. Hunt, of New York. It is an exceedingly ingenious invention, and illustrates the mode of unloading vessels by means of a railroad worked by a self-acting apparatus.

The Glass-Works are situated west of Machinery Hall, near the Fifty-second street entrance to the grounds. The building is one story in height, and contains a large brick furnace and chimney in the centre. It is gayly decorated with globes and other objects of colored glass. All the various processes of pressing, blowing and cutting glass are carried on here by a corps of experienced workmen. Tumblers, goblets, mugs and other articles are manufactured and sold to visitors. The building is the property of the well-known firm of Gillender & Sons, of Philadelphia, who are among the most prominent glass-makers of the United States. The work-room is thronged all through the day with visitors watching the process of manufacture.

The Saw-Mill is a one-story frame building, with a boiler-house attached, and is situated southwest of Machinery Hall, near Fountain avenue. It is the property of E. W. Ross &

BUILDING OF THE CAMPBELL PRESS COMPANY.



Co., of Fulton, New York, who exhibit here a fine direct-acting circular saw of improved construction.

The Campbell Printing Press Building is situated immediately west of Machinery Hall. It is built of wood; is two stories in height; is one hundred and forty-four by eighty-eight feet in size, and is handsomely decorated. An elaborate façade stands at the eastern end, and is surmounted by a statue of the inventor of the art of printing. A balcony crosses this front on a level with the second story. The building is in all respects one of the handsomest and best arranged erected by private enterprise within the Exhibition grounds. It is the property of the Campbell Printing Press and Manufacturing Company, of Brooklyn, New York, who here exhibit all their specialties in printing presses, from the immense and splendid "Rotary" to the smallest card printing presses.

The company have the exclusive right to do printing for the exhibitors and other persons connected with the great fair, and offer them peculiar facilities in this respect. For this purpose the company have established a large and complete printing office in this building, in which all the branches of the art are carried on. Type-setting, stereotyping, electrotyping, printing and book binding are in operation here, and those interested in these matters may here study all their details. A daily newspaper is to be edited, set up, printed and circulated from this building. The Campbell Building thus constitutes one of the *features* of the Exhibition, and deserves a generous recognition at the hands of visitors to the great fair.

Fuller, Warren & Co.'s Stove Building is a handsome one-story frame pavilion, situated at the east end of Machinery Hall and opposite the Total Abstinence Fountain. It is devoted to an exhibition of stoves, heaters and ranges in operation from the famous works of Fuller, Warren & Co., of New York, Chicago, Cleveland and Troy. These are richly worth an examination, and are among the handsomest as well as the best in the world.

The Liberty Stove Works is the name of an ornamental wooden structure west of Machinery Hall and south of the

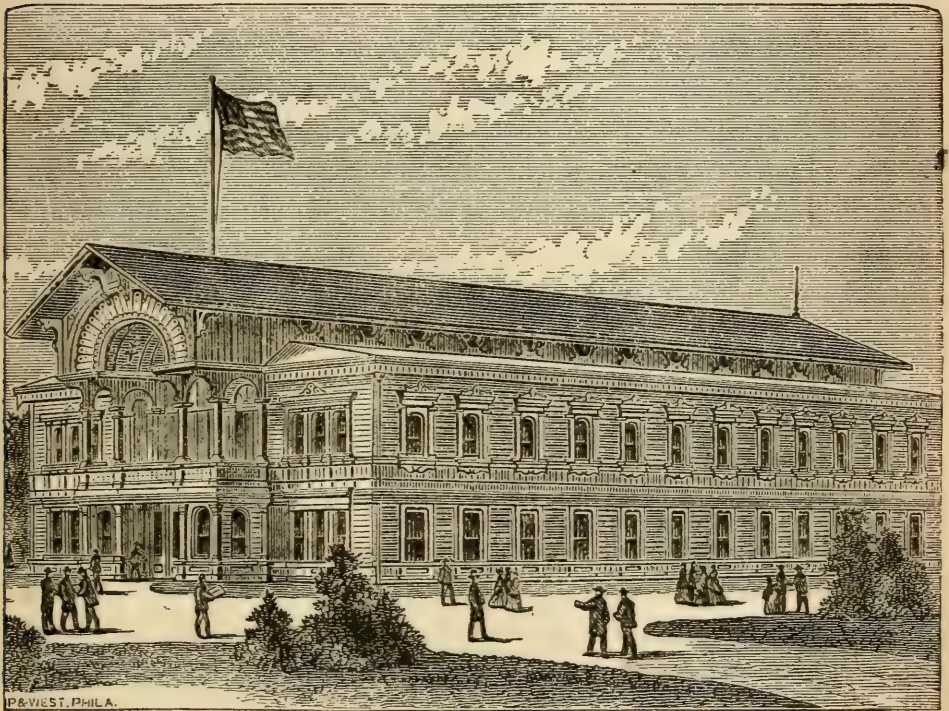
Total Abstinence Fountain. It is occupied with a display of stoves, heaters and ranges, manufactured by Charles Noble & Co., of the Liberty Stove Works, of Philadelphia. These offer a sharp competition to those of the establishment just mentioned, both in beauty of design and good workmanship.

The Pavilion of the Boston "Herald" and Boston "Daily Advertiser" is a small one-story frame building, situated on Fountain avenue, north of the western end of Machinery Hall. It is the head-quarters of the correspondents and attachés of the journals to which it belongs, and a centre of New England news.

Pop-Corn Buildings.—There are two of these buildings located in the grounds, one on Fountain avenue, opposite the north end of the lake, the other on Agricultural avenue, east of the New England Farmer's Home and Modern Kitchen. They are one-story frame structures, and are devoted exclusively to the sale of pop-corn. They are the property of J. A. Baker, of Dayton, Ohio, to whom the concession for the sale of this article belongs.

The American Newspaper Building is a handsome two-story frame structure, seventy by forty-six feet in size, and is situated on Fountain avenue, north of the lake and south of the United States Government Building. The edifice is thirty-three feet in height, and the style of architecture is light and graceful, affording a pleasing contrast to the great buildings of the Exhibition. It is painted in cool and pleasant neutral tints, and has a most attractive and inviting appearance. From the exterior it appears to be two stories in height, but the central hall rises clear to the roof. A long table extends down the middle of this hall, and on it are arranged copies of all the newspapers published in the United States. Chairs and sofas are scattered about the hall for the convenience of visitors, who are cordially welcomed and made to feel at home by the courteous manager and his assistants. All visitors are invited to come and read the local papers from their distant homes, and the building is thus one of the most convenient of all the features of the Exhibition.

On each side of the reception hall are long, narrow, but well-lighted alcoves, in the innumerable pigeon-holes of which are files of all the daily and weekly papers published in the United States. The admirable system upon which the establishment is conducted renders it easy for the attendants to find at once any paper of any date that the visitor may desire to see. Foreign visitors are thus enabled to make a study of American journalism. The height of the side chambers, where these alcoves



THE AMERICAN NEWSPAPER BUILDING.

are placed, is about ten feet, and over them are long galleries or sheltered balconies which extend all around the interior of the building. These are most tastefully fitted up with comfortable chairs and neat walnut writing-desks, while from the large open windows can be obtained a charming view of the lake, or glimpses of almost any other portion of the grounds. The representatives of all the newspapers in the country are welcome to the free use of these writing-rooms, and pens, ink, paper and envelopes are furnished editors and reporters free of charge.

When it is remembered that the building is located on one of the loveliest spots in the enclosure, and when it is stated that no noise of any kind, except the subdued voices of visitors, breaks the stillness so necessary to all higher classes of composition, it will be seen at a glance that no more desirable place in which to prepare descriptive reports of the Exhibition could be found, and no doubt the liberal accommodations will be taken advantage of by large numbers of visiting journalists, as well as by those resident in this city.

The building and its contents are the property of Messrs. George P. Rowell & Co., of New York, well known to the American people as the leading advertising agents of the United States. The energy and generosity with which they have carried out this unique and important branch of the Exhibition should render them even *more* popular with the business men of the country than their past extraordinary career has shown them to be.

The New York "Tribune" Pavilion is a tasteful one-story structure, octagonal in shape, with verandahs and a high peaked roof. It stands on the west side of Belmont avenue, near the north end of the lake, and is used as the head-quarters of the *Tribune* correspondents and as the Centennial business office of that journal.

The Pressed Fuel Company's Building is a small but handsome iron pavilion, situated on the Avenue of the Republic, west of the lake and opposite Machinery Hall. It is devoted to an exhibit of the pressed fuel prepared and sold by E. F. Loiseau, of Philadelphia.

The World's Ticket Office.—The well-known firm of Cook, Son & Jenkins, whose main house is in London, but whose branches are now established in New York, Philadelphia, Boston, Washington, New Orleans, San Francisco and Pittsburgh, have already gained a world-wide reputation by their system of cheap and attractive tours in all parts of the world. They have erected a handsome building of wood, hexagonal in form, and sixty feet square, and situated on Belmont avenue, immediately north of the eastern end of Machinery Hall. The interior con-

sists of a main hall extending to the roof and four private offices. The hall is lighted by six tasteful dormer windows placed in the roof, which rises from the sides to the central portion. Counters are arranged around the hall, at which tickets to all parts of the civilized world are sold. Guide-books to foreign countries, based upon the system of tours adopted by Messrs. Cook, Son & Jenkins, are for sale.

A number of articles of olive wood made in Palestine are offered for sale in the hall, and in the vestibule leading from the western entrance a number of Eastern curiosities are on exhibition. Among these is the mummy of an Egyptian priestess or princess of the age of the Pharaohs. In addition to the mummy, which, though three thousand years old, is in an excellent state of preservation, the mummy-case is rich in Egyptian figures and inscriptions, which describe her ladyship as a priestess or princess of noble rank; and the inscriptions, while, as usual, giving some biographical details, contain extracts from the "Book of the Dead," or "Ritual of the Dead." The mummy and case are the property of the Rev. Dr. J. L. M. Curry, President of the Richmond (Virginia) College, who obtained them at Luxor while making a trip up the Nile under the escort of a member of this firm. Weapons and other curiosities from Upper Egypt are also shown.

In the grounds in the rear of the building Messrs. Cook, Son & Jenkins show a model of the camp which they provide for persons journeying through Palestine under their charge. It consists of a dining-room tent large and square in shape, fitted up with a long table, chairs, etc.; and a sleeping-tent containing two single iron bedsteads, a wash-stand, dressing-case, etc. Attached to these is a kitchen. The camp is in charge of a Syrian dragoman and cook. Those who contemplate making a visit to the Holy Land should not fail to see this establishment, and should by all means consult Mr. Cook or one of his partners, who offer facilities and comforts in this difficult journey which cannot be otherwise obtained by travelers except at great expense.

Frank Leslie's Building is a pretty one-story frame pavilion

on the east shore of the lake, just north of the World's Ticket Office. It is used as a head-quarters for the artists and correspondents of Frank Leslie's illustrated publications.

The Women's School-House, or Kindergarten, is situated northeast of the Woman's Building and a few yards distant from it. It is a one-story Gothic cottage, one of the most charming and attractive structures on the grounds. It is thirty-five by eighteen feet in size, and is built of pine wood, which is brought to a beautiful hue by varnishing and polishing. Not a particle of paint is to be seen about the building, but the native wood shows everywhere bright and rich in color. The interior consists of a large hall with an alcove at the side for spectators. The system used is that of Frederick Froebel, the inventor of the Kindergarten. A low table stands in the centre of the room, and around it are a number of little rocking-chairs for the little pupils. Every Monday, Tuesday, and Wednesday the operations of the Froebel system are shown from ten until half-past twelve o'clock. The teacher is a lady from Boston, and the class is composed of sixteen bright little ones from the Northern Home for Friendless Children, in Philadelphia. A more delightful sight than these happy children at their studious play can scarcely be imagined. The advantages of the Kindergarten are so well known that it would be useless to dwell upon them here.

The American Kindergarten is a small frame building lying immediately north of the Carriage Annex to the Main Building. It is in charge of Miss E. M. Coe, of New York, an experienced teacher, whose system is said to be an improvement upon Froebel's, or rather an adaptation of his system to American wants. A school for the training of Kindergarten teachers constitutes a distinctive feature of this establishment. It is open daily.

Clark & Company's Building is situated between Belmont avenue and Lansdowne drive. It is forty feet square, one story in height, and is surmounted by a tower. It is devoted to a special exhibit of self-coiling shutters.

The Warren Foundry and Machine Shop represents cast-iron

gas and water pipes unprotected from the weather. It is located southwest of Machinery Hall, near the southern edge of the Exhibition grounds.

The New England Farmer's Home and Modern Kitchen constitute one of the most interesting features of the Exhibition. They are situated on State avenue, west of Agricultural avenue, and not far from the Woman's Building. The New England Farmer's Home is a plain one-story log house, and is built and arranged in the style of the New England farm-houses of a century ago. It contains a parlor, or "settin-room," a kitchen, and bed-rooms, all of which are furnished with veritable heir-looms contributed by the people of New England. Many of the articles are exceedingly valuable for their historical interest. In the "settin-room" is a chair made for Governor Endicott, who led the first colonization of Massachusetts two centuries and a half ago. In one of the chambers is the Fuller cradle in which was rocked little Peregrine White, the child who was born on board the "Mayflower" on the voyage of the Pilgrims to Plymouth. The rockers have been worn away in the long years that have elapsed since then, but the cradle still remains a mute witness of the wonderful story of American progress with which all tongues are busy now. What a contrast between the scene when it held its little charge in the hamlet of Plymouth, amid the fierce storms that howled along the bleak and barren coast of New England, and the grand assemblage of the nations and wealth of the world in which it now takes its part! Here is John Alden's writing-desk, on which he penned those tender epistles in which

"Every sentence began or closed with the name of Priscilla,
Till the treacherous pen to which he confided the secret
Strove to betray it by singing and shouting the name of Priscilla."

Here also is an ancient spinning-wheel which is known to have belonged to Plymouth for more than two hundred years, and which may be the very one which Priscilla, the Puritan maiden, whirled so deftly that poor John Alden could find no way out of the web she wove about him. Here is the dressing-

case of the Rev. Samuel Hopkins, the first minister in Rhode Island, one hundred and twenty-eight years old; and against the wall hangs the first clock brought to Andover, Massachusetts.

Everything in the house has the ripe flavor of antiquity, and the visitor may see in the place an exact reproduction of the homes that his ancestors, the Minute Men of the Revolution, left so promptly and bravely when the news of the battle of Lexington called them to arms. The farm-house is occupied only by ladies, who are dressed in the quaint costumes of their great-grandmothers, and who conduct visitors through the house and explain to them the story and uses of its contents.

Adjoining the farm-house is a frame building fitted up as a Modern New England Kitchen. It contains all the improvements of the present age, and shows the progress of the century in this department of domestic industry.

The Pacific Guano Company's Buildings are situated at the western end of the Horticultural grounds. The principal structure is a handsomely ornamented Moorish pavilion, two stories in height, containing specimens of the guano; and north of this is a shed containing models of the company's warehouses at Wood's Hole, Massachusetts, and Charleston, South Carolina. The grounds around the pavilion are plentifully fertilized with the guano, and are planted with cotton, tobacco, and sugar cane, which are growing finely under the warm sun and the generous stimulus of the fertilizer.

The Averill Chemical Paint Company's Building is situated on Fountain avenue, east of the saw-mill. It is a handsome pavilion of wood, and is ornamented with colored panels showing the various colors and qualities of the paints manufactured by this company. Specimens of the paints are on exhibition within the building.

The New York Slate Roofing Company's Building is a small wooden structure with a pointed roof. It is situated on the slope of Lansdowne valley, north of the Carriage Annex to the Main Building. It is devoted to an exhibit of the rubber

roofing and the patent slate roofing paint manufactured by this company.

George Hayes, of New York, has a wooden building painted in imitation of brick, north of the Carriage Annex and immediately west of the edifice just described. It is devoted to a special exhibit of patent window blinds, constructed so as to admit the air and at the same time exclude the dust and insects.

The Sheet Metal Pavilion stands on the north slope of the Lansdowne valley, south of and opposite the German Government Building. It is a handsome and elaborate edifice constructed entirely of sheet metal. A massive balustrade, ornamented with eagles and vases with flowers, all of metal, extends around the roof. The building is the property of Marshall Brothers & Co., of Philadelphia, manufacturers of metal roofing sheets, and the Kittredge Cornice and Ornament Company, of Salem, Ohio, manufacturers of architectural sheet metal and ornaments. The building, which is itself a beautiful specimen of the work of these firms, contains a large exhibit of the wares manufactured by them.

The Caff  do Brazil is situated on Fountain avenue, north of the lake. It is a small one-story pavilion of wood, and is conducted as a coffee house by a firm of Brazilian merchants.

The United States Life-Saving Station is a handsome two-story building, situated on the north shore of the lake, immediately west of the *Trois Fr res Proven aux* Restaurant. It is intended to show the system in use at the life-saving stations established by the general government at the dangerous points along our coast, and is provided with a full equipment of the articles necessary to this purpose.

The Elevated Railway spans the Belmont valley, and connects the Agricultural and Horticultural Halls. It rests upon a series of pillars which have foundations of masonry placed in the bed and on the sides of the valley. It consists of one upper rail and two lower ones placed in a triangular position, the lower rails being about four feet and a half below the central or upper rail. The car rests on the central rail, on which the principal wheels work, and it extends down to the level of the

lower rails, thus making it a two-story structure. Horizontal wheels revolve on the lower rails, and thus keep the car steady and prevent it from jumping the track or being thrown off. The adhesion of these wheels to the rails can be increased at pleasure. The car is divided into three compartments, one upper and two lower ones. The locomotive is provided with La France rotary engines, and has an ordinary horizontal boiler. It carries its fuel and water in the compartments below the centre rail. It is claimed for this road that it is cheaper to build, more economical to operate, and safer than any other elevated road in use. It conveys passengers across the Belmont valley for the moderate sum of three cents.

The Windmills.—A number of patent windmills of various kinds are located in the extreme northeastern corner of the grounds, on the hill overlooking the Schuylkill. They are in constant operation.




CHAPTER XX.

BIOGRAPHICAL.

GENERAL JOSEPH R. HAWLEY,

President of the U. S. Centennial Commission.

 JOSEPH RUSSELL HAWLEY was born in Richmond county, North Carolina, on the 31st of October, 1826. His father, a Congregationalist minister, and a native of New York, was at that time engaged in some missionary work in North Carolina, but in a few years removed to central New York, and settled at Peterboro. Here young Hawley grew up, gaining his education at the free schools of the district, and closing it at Hamilton College, from which he graduated in 1847. Having resolved to become a lawyer he began the study of his profession at Cazenovia, New York, and continued it at Farmington, Connecticut. In 1850 he removed to Hartford, Connecticut, at the suggestion of his uncle, David Hawley, a well-known city missionary, and began the practice of law there. He had a hard struggle at first, in his efforts to establish himself in his profession, but went to work with an energy and determination that finally brought him success. He continued to prosper, and five years after his settlement in Hartford he was able to marry, and on Christmas day, 1855, was united to Harriet, daughter of General A. Foote, of Guilford, Connecticut.

Mr. Hawley early distinguished himself in Hartford as one of the leaders of the *Free Soil* party. He was conspicuously active in State conventions, and was regarded as one of the most eloquent and forcible speakers in his party. Although enjoying a successful law practice his preference for politics led

him a few years later to abandon his profession and devote himself to journalism. Associating himself with Mr. Faxon, he bought out the *Hartford Republican*, and changed it into the *Hartford Evening Press*, of which he assumed the editorship. The new journal was a success from the first, and Mr. Hawley soon found himself ranked among the leading journalists of New England, a position which he maintained with ability and profit until the breaking out of the civil war.



GENERAL J. R. HAWLEY, PRESIDENT OF THE
U. S. CENTENNIAL COMMISSION.

Upon the receipt of Governor Buckingham's proclamation, after the fall of Fort Sumter, Hawley and two friends met at the office of the *Press* and signed their names to an enlistment paper as volunteers in the 1st regiment. A public meeting was held at Hartford the same evening and was presided over by the Lieutenant-Governor of the State. The list was presented to the meeting and was at once filled up, and Company A of the 1st regiment was

formed. Hawley was made first-lieutenant of this company, which was mustered into the service for three months, on the 22d of April, 1861. The colonel of the regiment being promoted soon after, Hawley became captain of his company. He exerted himself with ardor to organize and equip his men, and armed them with Sharpe rifles at his own expense. His regiment was promptly sent forward to Washington, and in the

battle of Bull Run, which soon followed, Captain Hawley's company was one of the few that did not take part in the shameful panic and flight.

The company was mustered out of the service on the 31st of July, 1861, their term of enlistment being ended. In the following month the 6th Connecticut Regiment was organized for three years' service, and of this body Hawley was made lieutenant-colonel. Upon reaching Washington the regiment was assigned to the Department of the South. It took part in the attack on Fort Wallace, under Colonel Terry, on the 7th of November; in the reduction of Fort Pulaski, on the Savannah, in April and May, 1862; in the battle of James Island, on the 14th of June; and in the fight at Pocotaligo, on the 22d of October, 1862, in all of which engagements it was especially distinguished for gallantry. During this period Terry had been made a brigadier-general and Hawley had been promoted to the rank of colonel, and commanded his regiment in nearly all these affairs.

Colonel Hawley commanded his regiment during the operations of General Gilmore, at Morris' island and Fort Wagner, in the campaign against Charleston in the spring and summer of 1863. He was subsequently placed in command at Fernandina, Florida, and had the good fortune while there to secure for his regiment the breech-loading Spencer rifle, which was ignored by the War Department during the war, but which he regarded as a most valuable weapon. On the 19th of February, 1864, he took part in the hard-fought battle of Olustee, Florida.

On the 4th of May, 1864, the 6th Connecticut was transferred to the Army of the James, where Colonel Hawley was given the command of a brigade in Terry's division. He participated in this capacity in Butler's attack on Bermuda Hundreds, and in the fights at Chester Station, Deep Bottom, Deep Run, Chapin's Farm, New Market Road, Darbytown Road, Charles City Road, and in nearly all the engagements which occurred north of the James river during the year.

In September, 1864, he was commissioned a brigadier-gen-

eral of volunteers, and in November was placed in command of 3000 Connecticut troops, and sent with General Butler to New York to maintain order in that city during the Presidential election of that year. He returned to the army when the elections were over, and in January, 1865, took part in the storming and capture of Fort Fisher, near Wilmington, North Carolina, one of the most brilliant operations of the war.

In the spring of 1865 General Terry was placed in command of the city of Richmond, and General Hawley was at his request made his chief of staff. He held this position until September 28th, 1865, when he was promoted to the rank of major-general of volunteers; and on the 15th of January, 1866, was honorably mustered out of the service. In quitting the army he left behind him the reputation of a brave and able officer, who had rendered good service to his country and whose every promotion had been won by the faithful and efficient discharge of duty in the field, and often under the most trying circumstances.

Returning home he was nominated by the Republican party as its candidate for Governor of Connecticut, and in April was elected over Governor English in one of the most exciting contests ever held in the State. He held the office for one term, and then, declining a renomination, returned to his editorial duties, having during his service in the army and his gubernatorial term retained his connection with the *Press*, which had been consolidated with the *Hartford Courant* under the latter title. Of this paper General Hawley was the chief proprietor and editor. In 1868 he was sent as a delegate to the National Republican Convention, at Chicago, and was chosen President of that body, which nominated Grant and Colfax for the Presidency and Vice-Presidency of the United States. On the 5th of November, 1872, he was elected to the Forty-second Congress, and was re-elected in 1874.

General Hawley was one of the first to espouse and work for the project of an International Centennial Exhibition, and both in Congress and in his journal gave himself heart and soul to the effort. Upon the passage of the act of Congress organizing

the United States Centennial Commission, he was appointed by President Grant a Commissioner from Connecticut. Upon the first meeting of that body, in March, 1872, General Hawley was chosen President of the Commission, to which position he has since been regularly re-elected. The ability and energy with which he has discharged the difficult, burdensome and often delicate duties of his position are shown in the magnificent success with which his labors have been crowned.

In person General Hawley is about five feet eight or nine inches in height, with a stout, well-built figure. His face indicates firmness and decision of character, and the expression of his clear gray eyes is straightforward and earnest. You would single him out in a crowd as a man of unusual ability, and as a man utterly incapable of an equivocal action.

JOHN WELSH,

Chairman of the Centennial Board of Finance.

John Welsh was born in the city of Philadelphia, in 1805, and was bred to mercantile pursuits. He is seventy-one years old, and was for many years a member of the well-known firm of J. & W. Welsh, general shipping and commission merchants, on Delaware avenue, near Walnut street. He is one of the most successful merchants of Philadelphia, and for half a century has been closely and honorably identified with the business interests of that city.

Mr. Welsh was one of the earliest advocates of the plan for the International Centennial Exhibition, and when the Board of Finance was organized, at the instance of the Centennial Commission, in June, 1872, he was appointed a member of it, and was unanimously chosen Chairman of the Board. In this capacity he has served for four years, and has discharged his duties with signal ability and fidelity. The general financial business of the Exhibition has been managed by the Board of Finance. Upon this body devolved the task of making the contracts for the erection of the Exhibition buildings, the proper completion of the same, the provision of the thousand

and one thing necessary to the complete success of the Exhibition, and the raising and disbursing of the revenue necessary for carrying out the great scheme.

The reader will thus see that the duties of Mr. Welsh have been of the most difficult and arduous nature. For the past two years he has devoted his whole time to the affairs of the Exhibition, and under his vigorous and able management they have been conducted with a vigor, promptness and success

which are characteristic of the man. The best evidence of the high esteem in which Mr. Welsh is held by the solid business men of the city is shown in the eagerness with which the leading capitalists of Philadelphia affixed their names as sureties to the bonds for \$500,000, which Mr. Welsh, in connection with Mr. Fraley, the Treasurer of the Board of Finance, was required to give for the faithful disbursement of the sum of \$1,500,-



JOHN WELSH, CHAIRMAN OF THE CENTENNIAL
BOARD OF FINANCE.

000, appropriated by the Congress of the United States in aid of the Exhibition. His popularity with his fellow-citizens generally was shown in the enthusiasm with which he was greeted by the vast throng which witnessed the inaugural ceremonies on the 10th of May.

ALFRED T. GOSHORN,

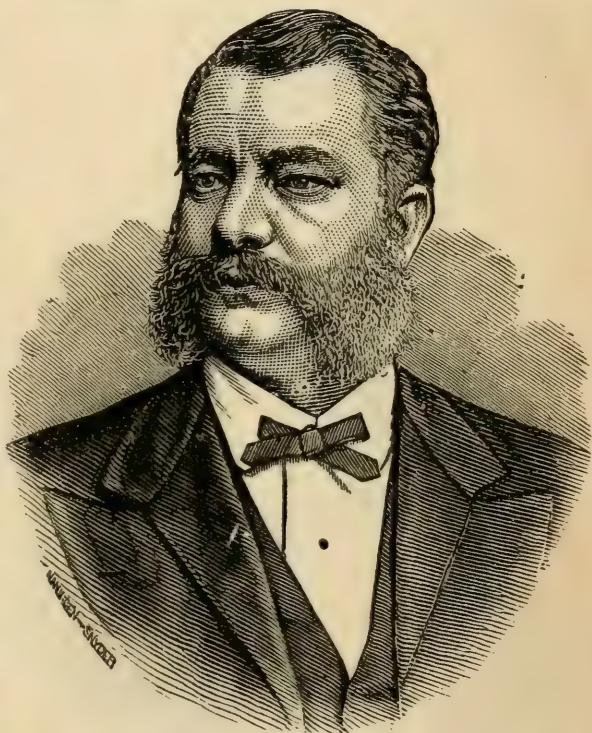
Director-General of the Exhibition.

Alfred T. Goshorn was born at Cincinnati, Ohio, in 1834.

He received his early education at the common schools of that city, and completed his studies at Hamilton College, from which he graduated with distinction. He studied law, and in due time entered upon the practice of his profession, but soon left the bar and engaged in manufacturing, becoming subsequently the proprietor of extensive white lead works near Cincinnati.

He entered heartily into the Exhibition scheme, and, upon the organization of the United States Centennial Commission, was appointed by President Grant a Commissioner from Ohio. At the first meeting of the Commission he was elected one of the Vice-Presidents of that body and Director-General of the Exhibition.

The Director-General is the chief executive officer of the Exhibition. Upon him devolved the trying charge of supervising the work generally, conducting negotiations, corre-



A. T. GOSHORN, DIRECTOR-GENERAL OF THE EXHIBITION.

spondence, and leading as one harmonious body to the objective point of success an army of artists, contractors, superintendents, clerks, exhibitors, railroad companies and State and national commissioners, previous to the opening of the Exhibition, and of managing all the daily details of the great enterprise after its public inauguration and during the Exhibition period.

Such a position requires executive ability of the highest order, and the brilliant success with which General Goshorn's

labors have been crowned has demonstrated the fact that he possesses this quality in an eminent degree.

PROFESSOR JOHN L. CAMPBELL,

Secretary of the United States Centennial Commission.

John L. Campbell was born at Salem, Indiana, on the 13th of October, 1827. His father was a prominent merchant and manufacturer of southern Indiana, and was able to give his son an excellent education.



PROFESSOR J. L. CAMPBELL, SECRETARY OF THE
UNITED STATES CENTENNIAL COMMISSION.

The young man entered Wabash College in 1844, and graduated from it with distinction in 1848. In 1851 he was appointed principal of the Preparatory Department of Wabash College, and held this position for two years, devoting his leisure time to the study of the law, receiving his license to practise in 1853.

He did not enter upon a legal career, however, for, in 1853, he was appointed Professor of Mathematics, Natural Philosophy and Astronomy in Wabash College, and accepted the position which he has since held with great distinction to himself and benefit to the college.

In February, 1864, Professor Campbell, at the especial request of Professor Henry, delivered at the Smithsonian Institution at Washington, the address on the life and teachings of Galileo, in commemoration of the three hundredth anniversary of the birth

of the great philosopher. The occasion of this address suggested to Professor Campbell the idea of commemorating the approaching Centennial of American Independence with an International Exhibition to be held at Philadelphia, and from this time he brooded over the scheme.

In 1866 Professor Campbell was appointed by the President of the United States a member of the Board of Visitors to West Point, and during this year he took the first public step in behalf of the Exhibition scheme—a plan which appears about this time to have suggested itself to the other gentlemen mentioned in an earlier part of this work. He addressed letters to the Hon. Morton McMichael, Mayor of Philadelphia, and the Hon. Henry S. Lane, United States Senator from Indiana, suggesting and giving an outline of a plan for the Centennial Exhibition of 1876, at Philadelphia. These gentlemen cordially responded, promising coöperation. Professor Campbell, thus encouraged, continued to urge his scheme, and at length had the satisfaction of seeing it an accomplished fact.

Upon the organization of the United States Centennial Commission, Mr. Campbell was appointed a commissioner from Indiana. At the first meeting of the Commission, on the 4th of March, 1872, he was appointed Chairman of the Committee on the permanent organization, and was subsequently placed at the head of the Committee on Foreign Affairs, a position of great responsibility. At the session of the Commission in May, 1873, he was chosen Permanent Secretary of the Centennial Commission, and has since then discharged the burdensome duties of that important office.

It being now impossible for him to attend to his professorships he offered his resignation to the Trustees of Wabash College, but that body, rather than lose his services for the institution, granted him leave of absence until the close of the Exhibition.

GENERAL CHARLES B. NORTON,
Secretary of the Bureau of Revenue.

Charles B. Norton was born at Hartford, Connecticut, and received a thorough education in his boyhood and youth. Upon reaching man's estate he adopted journalism as his profession, and won considerable reputation as publisher, editor and author. For many years his special business was connected with the



GENERAL CHARLES B. NORTON, SECRETARY OF
THE CENTENNIAL BUREAU OF REVENUE.

supplying of the principal libraries of the United States with rare and valuable works from foreign countries. In this business he made many trips to Europe, visiting and inspecting all the important libraries of the old world, and securing many expensive works of an official character as exchanges with those issued in this country. He gained a practical knowledge of the modern languages of the old world, and made the acquaintance of most

of the prominent literary men of Europe.

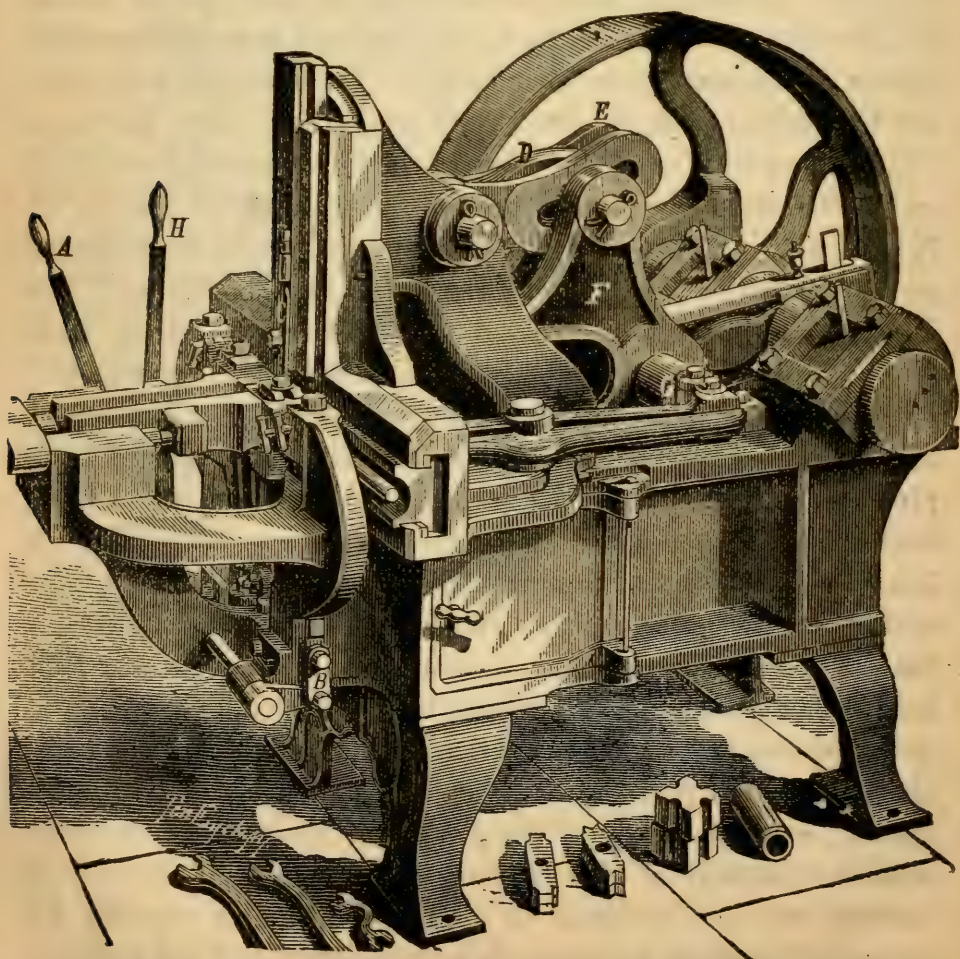
At the breaking out of the civil war, Mr. Norton gave up his business, and organized a regiment of twelve hundred men. He was elected a second lieutenant, and took part with his command in the first battle of Bull Run. He was subsequently present in nearly every battle of the army of the Potomac, and discharged

the duties of the various positions filled by him with credit to himself and to the satisfaction of his superior officers. He was soon taken from the line, and placed on the staff of General Butterfield, after which he served on the staffs of Generals McClellan, Porter and Barry. He was brevetted a brigadier-general of volunteers for his gallant meritorious services, and remained in the army until the close of the war.

In 1867 General Norton was appointed by President Johnson a commissioner from the United States to the Paris Exposition, and at the same time received a special military appointment to that Exposition from the State of New York. In this double capacity he repaired to Paris, where he fully sustained his previous reputation. He devoted himself with especial care to the interests of the American exhibitors, and won their grateful esteem by his services in their behalf. He made two reports on the Exposition: one to the President of the United States on "Munitions of War;" the other to the Governor of New York on the "State Exhibit and on the fortifications of the city of New York." Of these reports sixty thousand copies were printed and circulated by the general government and the State of New York, and the author received many flattering letters from foreign governments complimenting him upon their accuracy.

General Norton, as has been stated in an earlier portion of this work, was one of the first to conceive and advocate the plan of an International Exhibition. As soon as the scheme began to take a definite shape, and more especially after its incorporation by act of Congress, he became personally identified with the great undertaking. His services and experience have been of the greatest value, and though he has not at any time held any very high official position, he has proved his efficiency in every department, and his experience has been made use of without stint to the permanent advantage of the Exhibition. He has had especial charge of the press and all matters connected with the publicity of this great enterprise, and by his universal courtesy and his readiness to give, and peculiar capacity for giving, information he has made many friends, and has rendered invaluable service to the Exhibition. He has been one of the

hardest workers in the undertaking, and has been content to labor in private, leaving to others the credit of his work, and satisfied to do anything that could in the least contribute to the success of the great scheme. Such a man deserves an especial recognition at the hands of his fellow-citizens, and should receive it. Though his labors have not always been apparent to the world, they have been of the highest importance, and in nothing have the Centennial Commission shown their good sense more strikingly than in securing for the great work before them the experience and services of this able and accomplished gentleman.



ABBE BOLT FORGING MACHINE, EXHIBITED IN MACHINERY HALL.

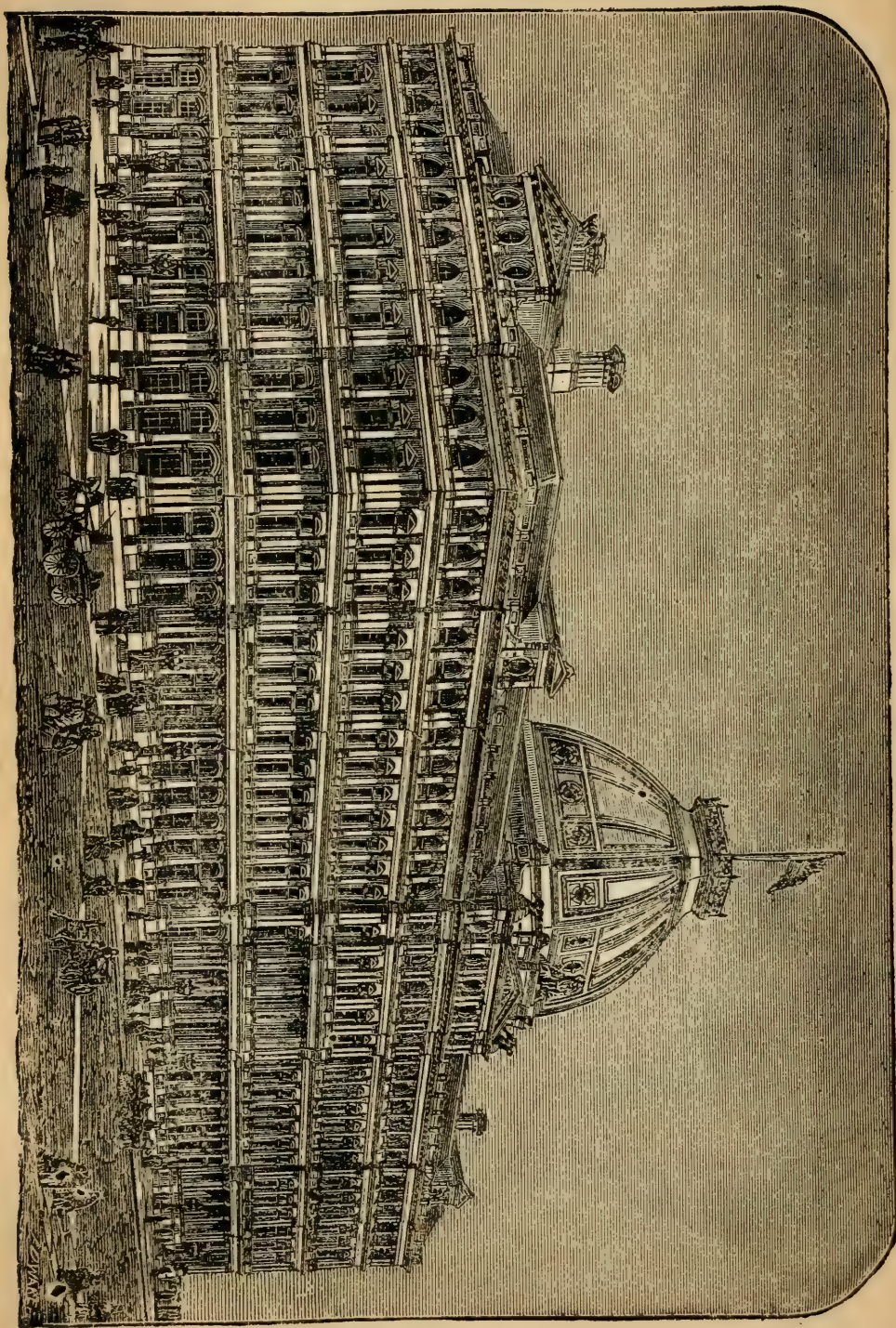
CHAPTER XXI.

THE CELEBRATION OF THE FOURTH OF JULY, 1876, AT PHILADELPHIA.

Arrangements for the Great Celebration—Action of the Centennial Commission—Independence Hall Decorated—The Centennial Legion—The Blue and the Gray—Brilliant Scenes in Philadelphia—Ceremonies of July 1st—Congress of Authors—The Great Civic Parade of July 3d—Ushering in the “Fourth”—The Midnight Celebration—Stirring Scenes—Dawn of the Fourth—The Military Parade—A Grand Demonstration—The Exercises in Independence Square—Other Celebrations—Illumination and Fireworks.

THE arrangements for the proper celebration of the 4th of July, 1876—the one hundredth anniversary of American independence—were at an early day confided to the United States Centennial Commission, and extensive preparations were made to conduct them on a scale of splendor worthy of the glorious occasion. The city of Philadelphia and the State of Pennsylvania lent their cordial coöperation to the effort to have all things in readiness for the Fourth, and the work went forward with a heartiness and vigor that could not fail of success.

It was wisely resolved by the Commission that as the Declaration of Independence was signed in Independence Hall and proclaimed to the people in Independence Square, the commemorative ceremonies should be so conducted as to make the venerable building the grand central figure of all the demonstrations. The city authorities caused the building to be handsomely draped in the national colors, and enormous stands, covered with canvas awnings and ornamented with flags and streamers, were erected in Independence Square for the accommodation of the singers and invited guests who were to take



THE NEW POST-OFFICE, PHILADELPHIA.

part in the rejoicings. A new bell of vast proportions—the gift of a patriotic and public-spirited citizen—was hung in the State House tower, ready to join its deep tones to the shouts of the multitude when the moment of rejoicing should arrive.

Being anxious that the Centennial celebration should do its share in cementing the reunion of the Northern and Southern States, the Commission began, at least a year before the occasion, the formation of a “Centennial Legion,” consisting of a detachment of troops from each of the thirteen original States. The command of this splendid body of picked troops was conferred upon General Ambrose E. Burnside, of Rhode Island, and General Henry Heth, of Virginia, was chosen Lieutenant-Colonel. Both were veterans of the late civil war. The Legion was readily made up, the best volunteer commands of the original States being eager to serve in it.

For a week previous to the 4th of July crowds of people began to pour steadily into Philadelphia. Volunteer organizations from the various States were constantly arriving, and were either encamped at various points in and around the Exhibition grounds or were quartered at the various hotels. The city was gayly decorated with flags and streamers, and the view down any of the principal streets was brilliant by reason of the clouds of bunting with which it was decorated. The principal buildings were almost hidden by the flags which adorned them, or were ornamented with patriotic inscriptions, and at various points on Chestnut street triumphal arches were erected. By the night of the 3d of July it was estimated that at least 250,000 strangers were assembled in Philadelphia.

The Centennial ceremonies were begun on the morning of Saturday, the 1st of July. The leading writers of the Union had been invited to prepare memoirs of the great men of our revolutionary period, which were to be deposited among the archives of the State House, and all who were able to accept the invitation assembled in Independence Hall at eleven o'clock on the morning of July 1st, 1876, where they were joined by a number of invited guests. The ceremonies were opened by an

address from Colonel Frank M. Etting, the Chairman of the Committee on the Restoration of Independence Hall, and a prayer by the Rev. William White Bronson. Whittier's Centennial Hymn was then sung by a chorus of fifty voices. The names of the authors were then called, to which each responded in person or by proxy, and laid his memoir on the table in the hall. The exercises were then brought to a close, and the company repaired to the stand in Independence Square, where a large crowd had assembled.

The ceremonies in the square were begun at half-past twelve o'clock with Helfrich's Centennial Triumphal March, performed by the Centennial Musical Association. Mr. John William Wallace, the president of the day, then delivered a short address, after which Whittier's Centennial Hymn was sung by a chorus of one hundred and fifty voices, and Mr. William V. McKean reviewed at some length the great historical event in commemoration of which the ceremonies were held. After the band had played "God Save America," the Hon. Leverett Saltonstall, of Massachusetts, delivered an address, which elicited warm applause. "The Voice of the Old Bell," a Centennial ode, was then sung, and Governor Henry Lippitt, of Rhode Island, made a short speech. The band followed with a number of patriotic airs, and Mr. Wallace announced the unavoidable absence of General John A. Dix, and introduced in his place Frederick De Peyster, President of the New York Historical Society, who made a few remarks. After a Centennial Ode, by S. C. Upham, had been sung by the chorus, the Hon. Benjamin Harris Brewster delivered an eloquent address, at the close of which another Centennial Hymn, by William Fennimore, was sung. Senator Frank P. Stevens, of Maryland, then said a few words, after which the "Star Spangled Banner" was sung, and the exercises were brought to a close by a prayer from Bishop Stevens.

All through Sunday, the 2d, the crowds continued to pour into the city, and on Monday, 3d, the streets were almost impassable. Business was generally suspended from the 1st to the 5th of July.



THE WISCONSIN STATE BUILDING.

The celebration ushering in the 4th of July was begun on the night of the 3d. A grand civic and torchlight procession paraded the streets, which were brilliantly illuminated along the whole line of march. The procession began to move about half-past eight o'clock at night, and consisted of deputations representative of the various trades of the city, the Centennial Commissioners from the various foreign countries taking part in the Exhibition, the governors of a number of the States of the Union, officers of the army and navy of the United States, civic and political associations, and officers of foreign men-of-war visiting the city. Some of the deputations bore torches, and these added to the brilliancy of the scene. All along the line fireworks were ascending into the air, and cheer after cheer went up from the dense masses of enthusiastic spectators which filled the sidewalks.

The illumination of the streets along the route of the procession was superb. Chestnut and Broad streets flashed resplendently in lines of fire and colored lanterns. The dense masses which thronged these streets stood out boldly in the clear light of the illumination, and the long, slow-moving line of the procession flowed through them like a vast river.

Crowds had collected around Independence Hall, filling the street before it and the square in the rear of it. An orchestra and chorus were stationed on the stands in the square to hail the opening of the Fourth with music. The movements of the procession were so timed that the head of the column arrived in front of Independence Hall precisely at midnight. The crowd, which had been noisy but good-natured, was hushed into silence as the hands of the clock in the tower approached the midnight hour, and one hundred thousand people waited in breathless eagerness the strokes which were to usher in the glorious day. As the minute hand swept slowly past the hour there was a profound silence, and then came rolling out of the lofty steeple the deep, liquid tones of the new liberty bell, sounding wonderfully solemn and sweet as they floated down to the crowd below. Thirteen peals were struck, and the first tone had hardly died away when there went up from the crowd

such a shout as had never been heard in Philadelphia before. It was caught up and re-echoed all over the city, and at the same time the musicians and singers in the square broke into the grand strains of the "Star Spangled Banner." All the bells and steam whistles in the city joined in the sounds of rejoicing, and fireworks and firearms made the noise tenfold louder. When the "Star Spangled Banner" was ended the chorus in Independence Square sang the "Doxology," in which the crowd joined heartily, and the band then played national airs.

The festivities were kept up until after two o'clock, and it was not until the first streaks of the dawn began to tinge the sky that the streets of the city resumed their wonted appearance.

The lull in the festivities was not of long duration. The day was at hand, and it threatened to be mercilessly hot, as indeed it was. As the sun arose in his full-orbed splendor the thunder of cannon from the Navy Yard, from the heights of Fairmount Park, and from the Swedish, Brazilian, and American war vessels in the Delaware, and the clanging of bells from every steeple in the city, roused the few who had managed to snatch an hour or two of sleep after the fatigues of the night, and by six o'clock the streets were again thronged.

In view of the extreme heat of the weather the military parade had been ordered for an early hour of the day. At a little after seven o'clock the line was formed, the right resting on Chestnut street, facing west, in the following order :

Governor Hartranft, of Pennsylvania, Commander-in-Chief, and Aides.

General Bankson, commanding First Division N. G. P., and Aides.

Philadelphia City Troop.

Black Hussars.

Keystone Battery.

Brigadier-General Thayer, Second Brigade, First Division, N. G. P., and Aides.

Cadets United States Military Academy.

United States Marines.

Second Brigade, First Division, N. G. P.

Third Pennsylvania Regiment, Colonel Ballier.

Sixth Pennsylvania Regiment, Colonel Maxwell.

Gray Invincibles (Pa.), Captain Jones.
 First Brigade, First Division, N. G. P.
 Brigadier-General Brinton and Staff.
 Second Pennsylvania Regiment, Colonel Lyle.
 United Train Artillery, Providence, R. I.
 Detroit National Guards, Captain O'Keefe.
 First Regiment Pennsylvania Infantry, Colonel Benson.
 Twenty-second Regiment New York N. G., Lieutenant-Colonel Camp.
 Albany Zouave Cadets, Captain Reynolds.
 Weccacoe Legion, Captain Denny.
 B Company First Regiment N. G., District of Columbia.
 D Company Eighth Regiment N. G. P., of Harrisburg.
 Washington, D. C., Grays.
 Pierce Light Guards of Boston.
 Centennial Legion.
 Three companies Virginia National Guards, Colonel Ordway.
 Seventh National Guards, New York, Colonel Clark.
 Twenty-third National Guards, New York, Colonel Ward.
 Two companies First Regiment N. G. of Vermont.
 Two companies Detroit Independent Cadets.
 Visiting troops from Texas.
 Cadets of Northern Home.
 Girard College Cadets.
 Visiting Governors and their Staffs.

The Centennial Legion, composed of detachments from the thirteen original States, occupied a prominent place in the line. It was commanded by General Henry Heth, of Virginia, and was composed as follows :

Rhode Island—Light Infantry Regiments.
 Georgia—Cinch Rifles.
 New Jersey—Phil Kearney Guards.
 Delaware—American Rifles.
 Maryland—Detachment Fifth Regiment.
 Massachusetts—Boston Light Infantry.
 South Carolina—Washington Light Infantry.
 New York—Old Guard.
 North Carolina—Fayetteville Light Infantry.
 New Hampshire—First New Hampshire Battery.
 Connecticut—New Haven Grays.
 Pennsylvania—State Fencibles.
 Virginia—First Light Artillery Blues.

The troops numbered about ten thousand men, rank and file, and the whole column was under the chief command of General

Hartranft, Governor of Pennsylvania, and a gallant veteran of the civil war. The command was made up of troops who during that bloody struggle had fought each other gallantly, and who had now come to testify their devotion to their common country, and to show to the world that in trusting its defence to its well-regulated militia the American republic is stronger than the most powerful monarchies of the old world.

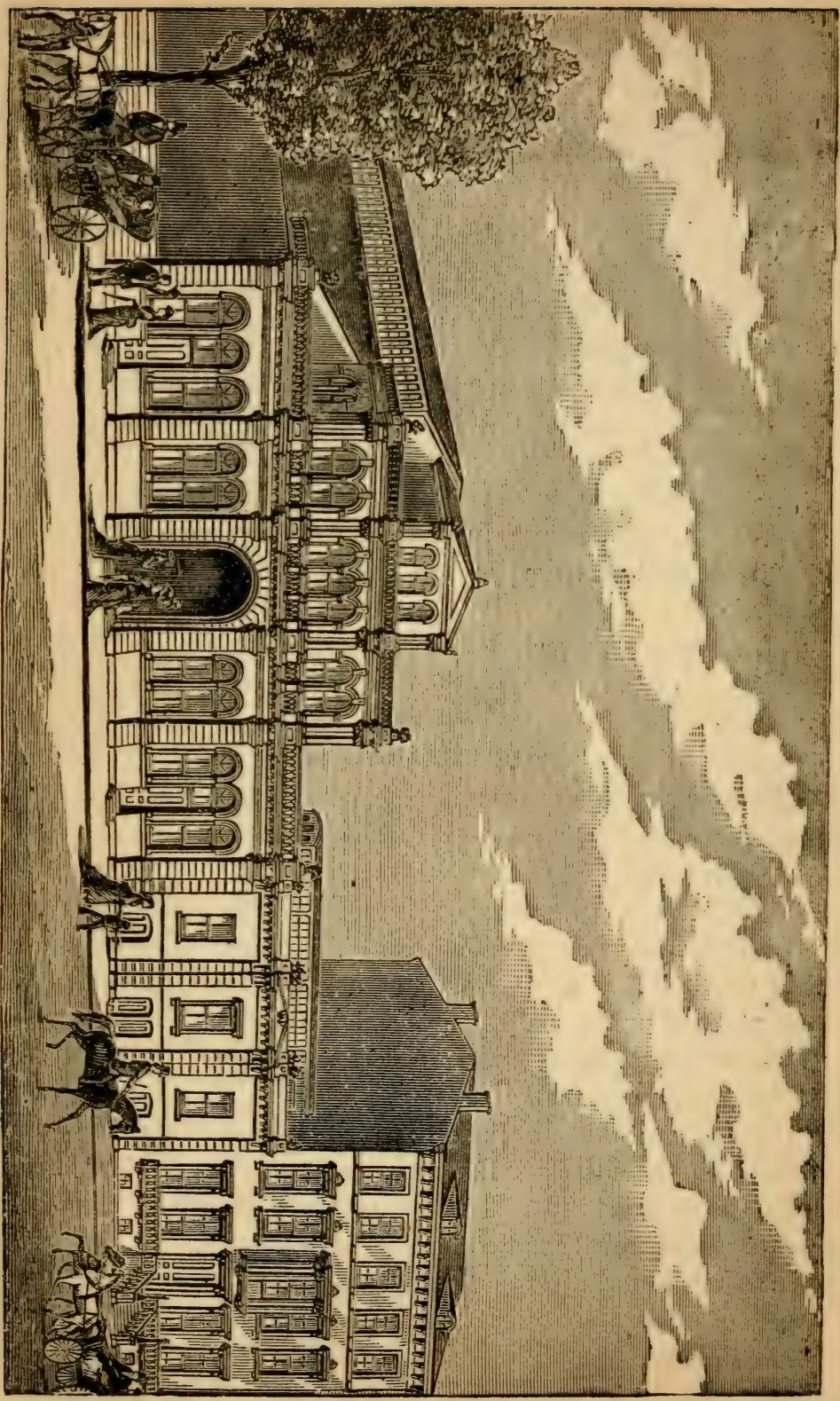
At half-past eight the column began to move down Chestnut street towards Independence Hall, in front of which the troops were reviewed by General W. T. Sherman, the Commanding General of the armies of the United States; the Secretary of War; Prince Oscar, of Sweden; Lieutenant-General Saigo, of the Imperial army of Japan; the officers of the Swedish men-of-war in the harbor; the governors of several of the States; and General Hawley, the President of the Centennial Commission.

As the troops passed along they were greeted with enthusiastic cheers by the crowds on the street. The Centennial Legion and the troops from the Southern States were the objects of an especially hearty demonstration. The route chosen was a short one, the extreme heat forbidding an extended parade, and by ten o'clock the military ceremonies were over.

As soon as the parade was ended the crowd turned into Independence Square, which was soon filled. The approaches to the building by way of Chestnut and Sansom streets were kept clear by the police, in order that those who were entitled to seats on the stand might reach their places. Four thousand persons were given seats on the stand, and a vast crowd filled the square. As the invited guests appeared and took their seats on the platform the prominent personages were cheered by the crowd. The Emperor of Brazil received a welcome that was especially noticeable for its heartiness.

It was hoped that the President of the United States would be present and preside over the ceremonies; but General Grant declined the invitation to do so, which it was at once his privilege and his duty to accept, and remained in Washington,

WOMAN'S CENTENNIAL CONCERT GARDEN, BROAD STREET.



preferring his selfish ease to a little patriotic exertion and exposure to the heat on this grandest of his country's festivals. His absence was generally remarked and severely condemned by his countrymen.

At a few minutes after ten o'clock General Hawley, the President of the United States Centennial Commission, appeared at the speaker's stand and signalled to the orchestra to begin. The opening piece, which was an overture entitled "The Great Republic," based on the national air, "Hail Columbia," and arranged for the occasion by Professor George F. Bristow, of New York, was rendered in fine style by the orchestra under the leadership of Mr. P. Gilmore. As the music ceased General Hawley again came forward and introduced as the presiding officer of the day the Hon. Thomas W. Ferry, Vice-President of the United States, who was received with loud cheers. After a few remarks appropriate to the occasion Vice-President Ferry presented to the audience the Right Reverend William Bacon Stevens, D. D., the Protestant Episcopal Bishop of Pennsylvania, whom he introduced as the ecclesiastical successor of the first chaplain of the Continental Congress. The bishop was in his canonical robes, with prayer book in hand. He delivered a solemn and impressive prayer, during the utterance of which the whole audience stood with uncovered heads, silent and attentive, unmindful of the blazing sun which poured down upon them.

When the prayer was ended the "Hymn, 'Welcome to All Nations,' words by Oliver Wendell Holmes, music, 'Keller's Hymn,'" was sung. The Vice-President then announced that Richard Henry Lee, of Virginia, a grandson of the patriot of the Revolution, who offered the resolution in Congress that "these United Colonies are and of right ought to be free and independent States," would read the Declaration of Independence from the original manuscript, which the President had intrusted to the mayor of Philadelphia. The faded and crumbling manuscript, held together by a simple frame, was then exhibited to the crowd and was greeted with cheer after cheer. Richard Henry Lee, a soldierly-looking Virginian,

then came forward and read the Declaration ; but the enthusiasm of the crowd was too great to permit them to listen to it quietly.

At the close of the reading the orchestra performed a musical composition entitled "A Greeting from Brazil," a hymn for the first Centennial of American Independence, composed by A. Carlos Gomez, of Brazil, at the request of His Majesty Dom Pedro II., Emperor of Brazil. It was received with cheers by the crowd, which were repeated for the Brazilian Emperor, whose hearty interest in the Centennial celebrations and the Exhibition had made him a favorite in Philadelphia.

Mr. John Welsh, Chairman of the Centennial Board of Finance, then, at the suggestion of Vice-President Ferry, introduced Bayard Taylor, the poet of the day, who recited a noble ode, which was listened to with deep attention, the audience occasionally breaking out into applause. When the poem was ended the chorus sang "Our National Banner," the words by Dexter Smith, of Massachusetts, the music by Sir Julius Benedict, of England.

As the music died away the Vice-President introduced the Hon. William M. Evarts, of New York, the orator of the day. Mr. Evarts was greeted with hearty cheers, after which he proceeded to deliver an eloquent and able address, reviewing the lessons of the past century and dwelling upon the great work America has performed for the world.

When Mr. Evarts retired from the speaker's stand General Hawley gave the signal to the leader of the orchestra, and the "Hallelujah Chorus," from "The Messiah," was sung ; after which the vast audience, at the request of the Vice-President, joined in the One Hundredth Psalm, with which the memorable ceremonies came to an end.

During the day the Humboldt Statue and the Catholic Total Abstinence Fountain, in the Exhibition grounds, were dedicated with appropriate ceremonies.

At night the city was brilliantly illuminated, and a magnificent display of fireworks was given by the municipal authorities at old Fairmount.

CHAPTER XXII.

THE INTERNATIONAL REGATTA.

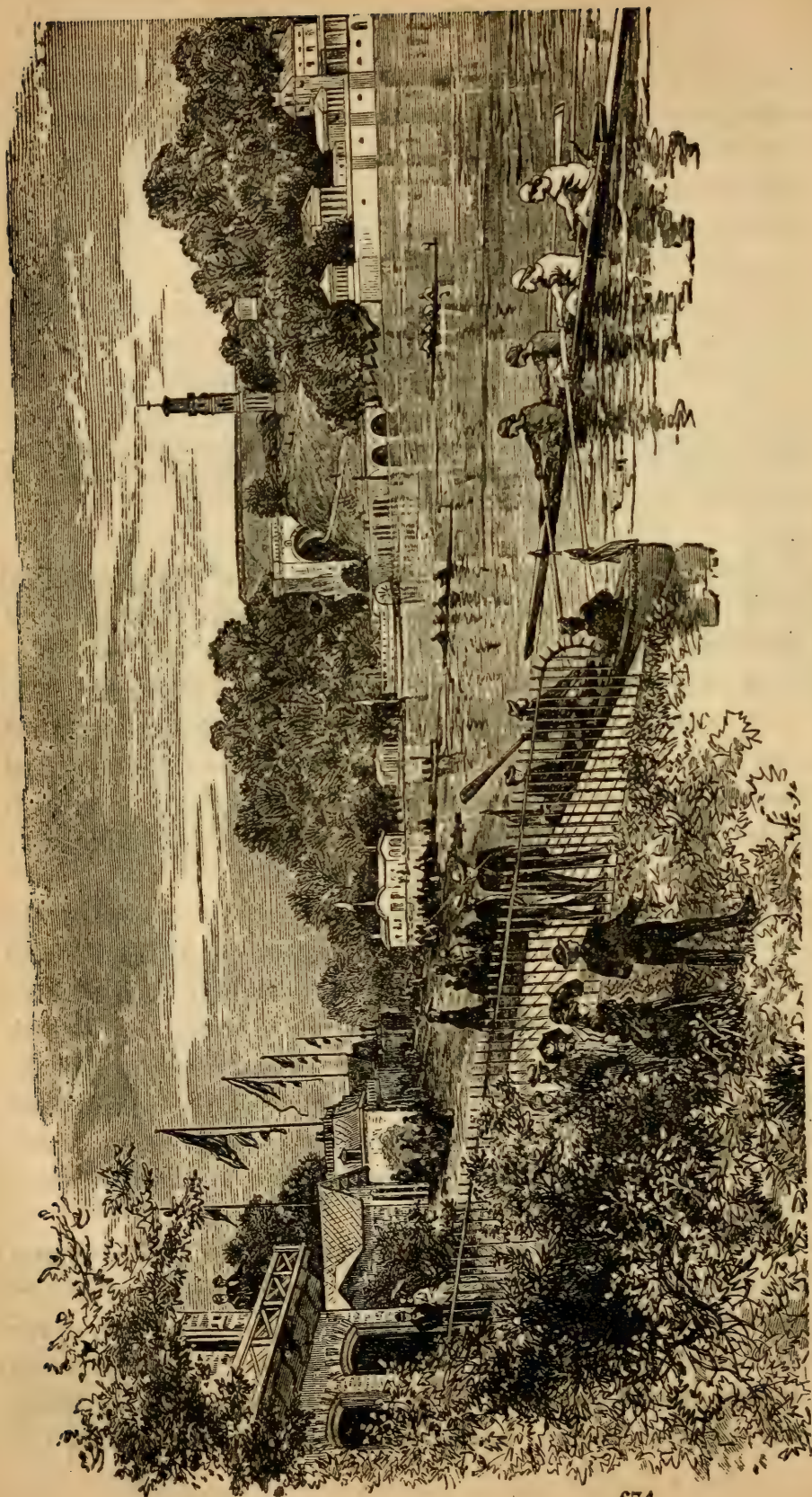
Arrangements for the Regatta—The Prizes—Sketch of the Schuylkill Navy—
Programme of the Races—Biographical Sketch of Commodore James M.
Ferguson—Description of the Races—The Winners.

NONE of the most prominent features of the Centennial Exhibition was the Grand International Regatta of the rowing clubs of the world, which was begun on the Schuylkill during the latter part of August. As was expected, it was the most imposing demonstration of its kind that has ever taken place, thanks to the energy and liberality which those who had it in charge displayed in arranging for it, and it is safe to predict that their expectations were fully realized.

The course over which the races were rowed is one of the best in the world. The river is broad, deep, and still, and without an obstacle to interrupt the contestants in their efforts.

The leading boat clubs of the United States and British provinces were present, and the English universities, and the city of London, the chief boating centre of the world, were fairly and handsomely represented by picked crews which offered a generous but active competition to the American oarsmen.

The races were held under the auspices of the United States Centennial Commission, which awarded the prizes to the successful contestants. These consisted of medals of gold, silver and bronze, vases, punch-bowls, etc., and are as handsome in both design and execution as the silversmith's art can make them. The gold medal was for the winning crew, silver for the



BOAT HOUSES OF THE SCHUYLKILL NAVY.

second in the race, and the bronze for all the participants. The medals are circular in form, and in the centre, in bas relief, will be a single-scutt oarsman pulling; over him is a scroll, and the outer edge contains thirteen stars. The reverse has the words "International Regatta, Philadelphia, 1876," surrounded by a wreath, in which is left a space for engraving the name of the contestant. Attached to the medals is a pendant loop of quite a pretty design. The diamond badge, for the winner of the single-shell race, has upon it the flags of the foreign nations which are represented, carved and surmounted by a scroll. Below, in the centre, is the monogram of the navy in diamonds, in a shield, surmounted by bent sculls entwined with laurel leaves. A pedestal has raised devices of a rudder and foot-board, and below this, in bas relief, is a rower in a single-shell. The bottom of the badge is composed of crossed oars, with a lantern and a scroll depending therefrom. For the pair-oared race the prize will be a magnificent punch-bowl; the top is embellished with the figures of two oarsmen stripped, and each holding aloft an oar; on the sides are the heads of eagles thrust through laurel wreaths, and on the sides are wreaths, with boat-hooks and palm leaves. The base is of ebony, and decorated with festoons, rosettes, and laurel leaves. On the reverse side is a space for engraving the name of the winner. For the graduates' race the prize is a large vase; on the sides at the bulb are the figures of herons about devouring frogs; on the sides are the letters "I. R. R."—International Rowing Regatta. There are within a shield flanked by oars, over which is a scroll containing the figures "1776—1876." The shank rests upon the arch of a bridge, through which is passing a four-oared shell, vigorously pulled by the crew. All rests upon a base which represents the water of a river. For the double-scutt race a simple but pretty prize was adopted. It represents two oarsmen ready for work, and carrying their boat down to the water and their oars on their shoulders. On the base is a blank for an appropriate inscription. For the college regatta the prize is contributed by George W. Childs, Esq., of the *Public Ledger*, and comprises a tureen of magnificent

design, the upper part being embellished with the heads of eagles. The tureen rests on a shank consisting of a silver globe, flanked by four oars. The globe rests on two columns for side supports, and a representation of old Independence bell for the centre support. The bell has on it the United States coat of arms, and the columns the coats of arms of England and Ireland. On the lid of the tureen is a figure of Victory. For the international four-oared shell race is also a handsome tureen, having on its sides views of the Schuylkill. The top is a representation of the dome of the Capitol at Washington, surmounted by the statue of America. The shank has the flags of all nations, in colors, entwined around it, and the base is of marble of different colors.

The regatta brought together the boating men of the world; and as these are amateurs and men of the better walks of life—many of them gentlemen of wealth and culture—it was one of the pleasantest and most beneficial features of the Exhibition.

As the races, while under the control of the Centennial Commission, were under the local management of the Schuylkill Navy, it is proper to call attention more fully to this organization.

The SCHUYLKILL NAVY was organized in 1858, and is composed of nine boating clubs, as follows :

The University Barge Club, of Philadelphia	.....	12 boats.
The Undine " " " "	.....	15 "
The Quaker City " " " "	.....	12 "
The Pennsylvania Boat " " "	.....	15 "
The Philadelphia Barge " " "	.....	11 "
The Malta Boat " " "	.....	11 "
The Crescent Boat " " "	.....	13 "
The West Phila. Boat " " "	.....	11 "
The College " " " "	.....	9 "

There are thus one hundred and nine boats in the navy, and the membership is at present about six hundred and fifty. The members are strictly amateurs, a term which is thus defined by the constitution of the navy : " We define an amateur oarsman

to be one who does not enter in open competition, for either a stake, public or admission money, or entrance fee, or compete with or against a professional for any prize, or who has never taught, pursued, or assisted in the pursuit of athletic exercises as a means of livelihood, or has not been employed in or about boats or in manual labor on the water." Each club has its own boat-house. These are located on the east shore of the Schuylkill at Old Fairmount, and are elegant stone structures, two stories in height. They are provided with every facility for boating, and with rooms for meetings and entertainments. The total amount invested by the navy in boats, uniforms, houses, etc., is about \$70,000.

The members of the Schuylkill Navy entered with enthusiasm into the arrangements for the regatta, and contributed more than liberally to the expenses of the fete, which, unlike the Exhibition itself, brought no pecuniary return to its projectors. Besides furnishing quarters in their own boat-houses to the boats of visiting crews, they erected temporary boat-houses in the park, which furnished ample accommodations to all who came to take part in the races.

From the circular issued by the navy we make the following quotation:

"Arrangements have been made to hold the following races:

First—An International Race will be held, open to all regularly organized boat-clubs throughout the world, to be rowed in accordance with the rules of the National Amateur Rowing Association of the United States; the prizes to be a piece of plate each for fours, for pairs, for doubles and for single-sculls, and in addition, medals to be presented to each man rowing in the race, to be of gold for the winning crew, for the second crew of silver, and the remainder of bronze.

Second—An International College Race for four-oared shells will be held, the prize to be a piece of plate, with a gold medal to each member of the winning crew; open only to under-graduates.

Third—An International Graduates' Race will be held for four-oared shells, open only to graduates of colleges or univer-

sities ; the prize being a piece of plate, and a gold medal to each member of the winning crew.

“No person will be allowed to row in both the International College Race and International Graduates’ Race.

“*Fourth*—Professional Races will be held, open to all crews throughout the world, for four-oared, pair-oared and single-scutt shells for purses, the amounts of which will be announced by the 1st of May, 1876.

“The races will be held between the 20th of August and the 15th of September, and the entries shall be closed on July 15th.

“An entrance fee of \$25.00 will be charged for fours ; \$15.00 for pairs and doubles, and \$10.00 for singles. This fee will be returned to all boats starting in the races, and is demanded as a guarantee of good faith in making the entry, and to justify the committee in making the necessary arrangements for properly housing the boats of the entering crews.

“The Amateur Races will be rowed in heats one and a half miles straight-a-way. The Professional Races will be rowed in heats of three miles, one and a half miles and return.

“Besides the above prizes the ‘Jury on Rowing’ of the United States Centennial Commission, who will have an oversight of all the races, will award the diploma and medal of the Commission to the victors.

“The National Amateur Rowing Association will hold their annual regatta over the same course (the National), beginning on August 22d.”

Great credit is due to the navy as a whole for its generous support of the regatta, but the man who is entitled to the chief praise is James M. Ferguson, the able and efficient Commodore of the Schuylkill Navy, who was the first to conceive the plan of an international regatta as one of the features of the Exhibition, and to whose energy, pluck and determination the success of the scheme is mainly due.

James M. Ferguson was born at Cookstown, in the county of Tyrone, Ireland, on the 1st of August, 1834, and comes of that North of Ireland Presbyterian stock which built up western Pennsylvania and Americanized itself by its gallant services

during the Revolution. His father was a linen merchant, but becoming unfortunate in business, emigrated to the United States in 1847. One week after the arrival of the family in Philadelphia, the father was laid to his eternal rest, and the subject of this memoir, a lad of thirteen, was set to work to earn his own living. He was placed in a wholesale notion house in Philadelphia, but did not remain there long. He was



COMMODORE JAMES M. FERGUSON.

anxious to become a printer, and soon entered the office of William S. Young as an apprentice.

It was a characteristic of the boy, as it is of the man, not to do things by halves, and he set to work with a will to master the "art preservative of arts." In this office he was a fellow-apprentice with many young men who have since become distinguished in journalism. Among these may be mentioned John Russell Young, managing editor of the *New York Herald*;

H. J. Murdoch, of the *United Presbyterian*, of Pittsburgh; Major John M. Carson, of the *Washington Republican*; Joseph McFarland, of the *Cincinnati Commercial*; George S. Ferguson, of the *Christian Instructor* of Philadelphia; and John Blakely, of the *Philadelphia Evening Star*. He succeeded so well in his efforts to learn that, before his apprenticeship expired, his employer released him to allow him to take charge of the office of the *Westminster Herald*, of New Wilmington, Pennsylvania. He had a double object in securing this position. It not only gave him an independent position, but enabled him to enjoy the benefits of a two years' course of study at Westminster College. During this time he attended regularly to his duties in the printing office, and maintained an enviable position in his classes at college. At the close of his collegiate term he removed to Pittsburgh, and became the publisher of the *United Presbyterian*, one of the most influential journals of that denomination in the United States. Soon after settling in Pittsburgh, he married Miss Lizzie Moffatt, of New Castle, Pennsylvania, who died in 1860, leaving one son as the issue of this union.

Mr. Ferguson was anxious to return to the city of his boyhood, and an opportunity was soon offered. He purchased an interest in the *Christian Instructor*, a weekly paper published by his old employer, and at the same time established the *Youth's Evangelist*, a semi-monthly for Sabbath school children. Under his able and energetic management these papers were soon placed upon an assured footing of success. In October, 1868, he contracted a second marriage, the lady in this instance being Miss Rebecca J. McBride, of Philadelphia. In January, 1870, he entered into partnership with S. A. George in the business of printing, electrotyping, and stereotyping, the firm-title being S. A. George & Co. He is still a partner in this house, which possesses one of the largest and most perfectly appointed printing establishments in the United States.

Soon after his return to Philadelphia, Mr. Ferguson became a member of the Quaker City Barge Club, one of the rowing organizations of the Schuylkill Navy. The war put an effectual

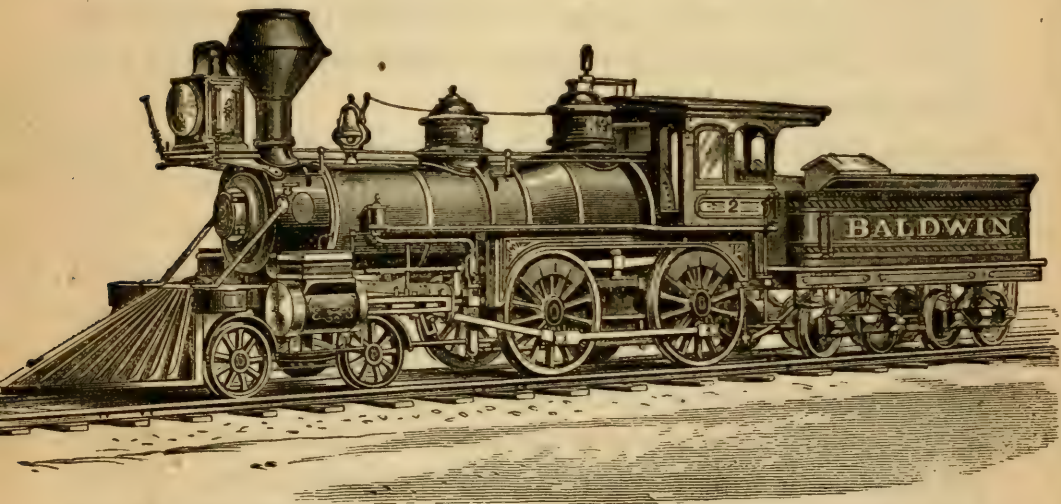
damper upon all enterprises of this kind, but upon the return of peace the public interest in boating matters began to revive. Mr. Ferguson was quick to perceive this, and exerted himself with characteristic energy to promote the interests of the Schuylkill Navy. He was especially active in organizing and carrying out the regattas of the navy, and his services were so highly appreciated by his comrades that early in 1868 he was elected to the post of Vice-Commodore of the navy. His administration of this office gave such marked satisfaction that in 1869 he was elected Commodore. At the close of 1869 business engagements compelled him to decline a re-election as Commodore, but he was still the representative of his club in the naval board. At the urgent solicitation of the members of the navy, he accepted the position of Vice-Commodore a second time in 1872; and in August, 1873, upon the resignation of Commodore Coxe, was unanimously elected Commodore *onœ more*, and has held that position ever since.

As early as the fall of 1873 Commodore Ferguson conceived the plan of a grand International Rowing Regatta on the Schuylkill in 1876, and at once set to work to bring the navy to the support of his scheme. In this he was successful, and at the meeting of the naval board in March, 1874, he was authorized to visit Europe and invite the principal rowing clubs of the old world to take part in the proposed regatta. He sailed in July, and, on the night preceding his departure, was the recipient of an unexpected ovation from the members of the navy, who presented him with a superb gold badge emblazoned with the monogram and flags of the navy and other appropriate devices. The cost of this beautiful insignia of his office was \$300. Upon reaching Europe, Commodore Ferguson visited the leading rowing associations and extended to them the invitation of which he was the bearer. He was everywhere received with marked cordiality, and brought back home the gratifying assurances of the hearty coöperation of these associations in the regatta.

Upon his return home he gave himself with renewed energy to the effort to bring the scheme to success. It was his personal

effort that induced the United States Centennial Commission to adopt it, and make it a part of the programme of the Exhibition, and, as Mr. Lynch, of the Centennial Commission, declared in a recent public speech, "If the regatta is the grand success it promises to be, it will chiefly be due to the indomitable energy, pluck and determination of Commodore Ferguson, who conceived it and carried it to triumph in the face of every obstacle."

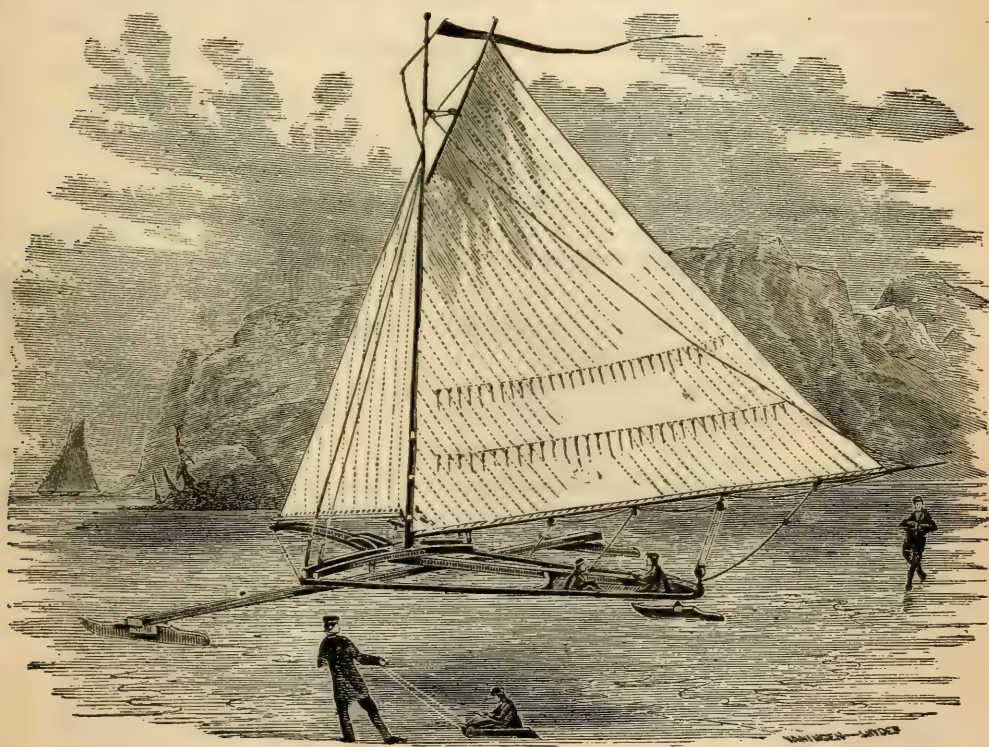
In person, Commodore Ferguson is a little above the medium height, with a compactly knit, active figure, light sandy hair and whiskers, and clear unfaltering eyes, which glow with the genial light of the warm and generous nature which has endeared him to his host of friends on both sides of the Atlantic.



THE BALDWIN NARROW-GAUGE LOCOMOTIVE, USED BY THE WEST-END RAILWAY IN THE EXHIBITION GROUNDS.

The most active preparations were made for the International Regatta by the gentlemen having it in charge, and no efforts were spared to make the occasion the most memorable aquatic carnival ever held. The course was carefully marked off with flags and buoys, and the distances measured with exactness. A grand stand was erected at Rockland, the finishing point, and another on the opposite side of the Schuylkill. The starting point was immediately below the bridge of the Reading Rail-

road, at the Falls of the Schuylkill, and the "finish" at Rockland, just above the Columbia bridge. The stands and the banks of the river were thronged with spectators daily, the crowds frequently numbering as many as one hundred thousand persons, and the utmost good nature and enthusiasm prevailed. The winning crews were greeted with deafening cheers as they came in, and were made to feel that the sympathies of the vast throng were heartily with them. The Regatta was in all respects a brilliant success, and the result more than rewarded the generous efforts of those who had projected it and carried it through to its triumph.



THE ICE-YACHT, EXHIBITED IN MACHINERY HALL.

As it will be impossible to give a detailed description of each day's proceedings, we must content ourselves with presenting here a statement of the result of each day's work, from which the reader will learn the names of the contestants, the winners, and the time made by each.

The Regatta was opened on Tuesday, August 22d, and

closed on Wednesday, September 6th, 1876. The first three days were devoted to the Fourth Annual Regatta of the National Association of Amateur Oarsmen, with the following result:

Fourth Annual Regatta of the National Association of Amateur Oarsmen, held at Philadelphia, August 22, 23, and 24, 1876. Race—Straightway. Distance— $1\frac{1}{2}$ miles. Course—The National Course, Schuylkill river. Umpire—Mr. E. D. Brickwood, England. Judge at Finish—Mr. Walter C. Madeira, Philadelphia.

FIRST DAY.

TRIAL HEATS—FOUR-OARED SHELLS.

FIRST HEAT.

	Time.
1.—Atalanta, New York city—Bow, W. H. Downs; 2, H. W. Rodger; 3, C. A. Lyon; stroke, J. E. Eustis.....	9.13 $\frac{1}{4}$
2.—Beaverwyck, Albany, New York—Bow, J. T. McCormick; 2, J. H. McEntee; 3, R. T. Gorman; stroke, T. J. Gorman.....	9.28 $\frac{1}{4}$
3.—Yale College, New Haven, Connecticut—Bow, F. Wood; 2, W. W. Collin; 3, D. H. Kellogg; stroke, J. Kennedy.....	9.39 $\frac{1}{2}$

SECOND HEAT.

1.—Columbia College, New York city—Bow, E. E. Sage; 2, G. Griswold; 3, C. S. Boyd; stroke, J. T. Goodwin.....	9.13 $\frac{1}{4}$
2.—Vesper, Philadelphia—Bow, H. McMillan; 2, F. Henderson; 3, W. T. Corson; stroke, J. B. Mingus.....	9.14

SINGLE SCULLS—FIRST HEAT.

1.—P. C. Ackerman, Atalanta, New York.....	10.28
2.—R. H. Robinson, Union Springs, New York.....	10.55
3.—C. P. Tasker, Crescent, Philadelphia.....	11.12 $\frac{1}{2}$

SECOND HEAT.

1.—C. E. Courtney, Union Springs, New York.....	10.38 $\frac{1}{2}$
2.—F. Pleasonton, Quaker City, Philadelphia.....	11.45

THIRD HEAT.

1.—F. E. Yates, Union Springs, New York.....	10.46
2.—H. McMillan, Vesper, Philadelphia.....	10.47

SECOND DAY.

DOUBLE SCULLS.

	Time.
1.—Union Springs, New York—Bow, R. H. Robinson; stroke, C. E. Courtney.....	9.19
2.—Atalanta, New York—Bow, P. C. Ackerman; stroke, H. W. Rodger.....	9.26
3.—Vesper, Philadelphia—Bow, H. McMillan; stroke, J. B. Mingus.....	10.10 $\frac{1}{2}$

PAIR OARS.

1.—Atalanta, New York—Bow, W. H. Downs; stroke, J. E. Eustis.....	10.10 $\frac{3}{4}$
2.—Nautilus, New York—Bow, David Roache; stroke, William Walshe.....	10.29
3.—Argonauta, New Jersey—Bow, W. T. Taylor; stroke, John Gunster.....	10.50 $\frac{1}{2}$

THIRD DAY.

FINAL HEATS—SINGLE SCULLS.

	Time.
1.—F. E. Yates, Union Springs, New York.....	10.39 $\frac{1}{2}$
2.—P. C. Ackerman, Atalanta, New York.....	18.46

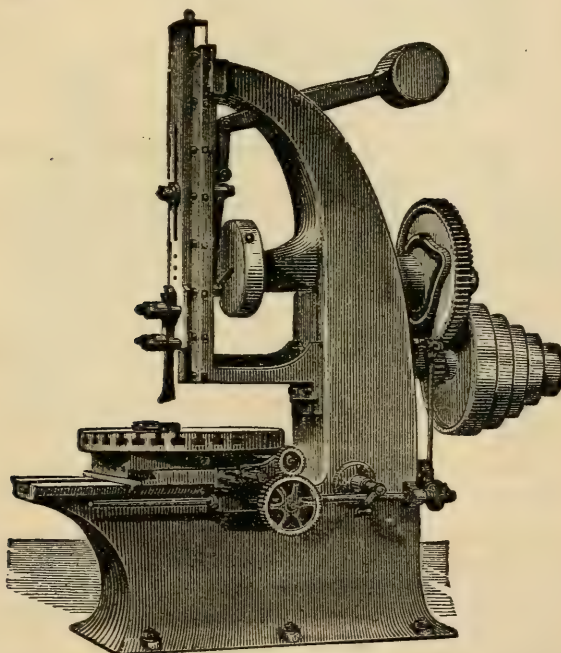
FOUR-OAR SHELLS.

	Time.
1.—Atalanta, New York—Bow, W. H. Downs; 2, H. W. Rodger; 3, C. A. Lyon; stroke, J. E. Eustis.....	9.37¾
2.—Columbia College, New York—Bow, E. E. Sage; 2, G. Griswold; 3, C. S. Boyd; stroke, J. T. Goodwin.....	Not taken

These races being over, the *International Regatta* proper began on the 28th of August, and lasted five days, the public interest in it increasing every day. The following is the official statement of the result:

INTERNATIONAL REGATTA.**AMATEUR RACES.**

Held at Philadelphia, August 28, 29, 30, 31, and September 1, 1876. Race—Straightway. Distance—1½ miles. Course—National Course, Schuylkill river. Umpire—Mr. Frank Brown, New York. Judge at Finish—Mr. Walter C. Madeira, Philadelphia.



THE SELLERS SLOTTING MACHINE, IN MACHINERY HALL.

FIRST DAY.**TRIAL HEATS—FOUR-OARED SHELLS.****FIRST HEAT.**

	Time.
1.—Eureka, Newark, New Jersey—Bow, J. Young; 2, W. Ryno; 3, P. Young; stroke, J. Angleman.....	9.29½
2.—Dublin University Rowing Club, Ireland—Bow, N. Ferguson; 2, C. Barrington; 3, C. B. Barrington; stroke, G. H. Hickson.....	9.36½
3.—Argonauta, Bergen Point, New Jersey—Bow, E. Smith; 2, B. Stephenson; 3, C. E. Dunbar; stroke, F. C. Eldred.....	9.42

SECOND HEAT.

	Time.
1.—Yale College, New Haven, Connecticut—Bow, R. J. Cook; 2, W. W. Collin; 3, D. H. Kellogg; stroke, J. Kennedy.....	9.02 $\frac{3}{4}$
2.—Vesper, Philadelphia—Bow, H. McMillan; 2, F. Henderson; 3, W. T. Corson; stroke, J. B. Mingus.....	9.13 $\frac{3}{4}$
3.—Crescent, Philadelphia—Bow, C. E. Steel; 2, H. K. Hinchman; 3, H. W. Terry; stroke, G. Milliken.....	9.46 $\frac{1}{2}$

THIRD HEAT.

1.—Columbia College, New York city—Bow, E. E. Sage; 2, G. Griswold; 3, C. S. Boyd; stroke, J. T. Goodwin.....	9.08
2.—Elizabeth, Portsmouth, Virginia—Bow, J. Murray; 2, P. McGrath; 3, T. Gallagher; stroke, D. Callahan.....	9.11
3.—Quaker City, Philadelphia—Bow, J. McBeath; 2, C. R. Adams; 3, S. B. Stinson; stroke, S. M. Gormley.....	Withdrawn

FOURTH HEAT.

1.—Beaverwyck, Albany, New York—Bow, J. T. McCormick; 2, J. H. McEntee; 3, R. T. Gorman; stroke, T. J. Gorman.....	9.14
2.—Duquesne, Alleghany City, Pennsylvania—Bow, D. Fritz; 2, O. Moody; 3, S. Moody; stroke, F. Brennan.....	Not taken
3.—Falcon, Burlington, New Jersey—Bow, A. Horn; 2, H. McKim; 3, T. Meyers; stroke, J. W. Horn.....	Not taken

FIFTH HEAT.

1.—Watkins, New York—Bow, A. McLafferty; 2, F. Stoll; 3, A. Tyrell; stroke, F. Wakeman.....	9.06 $\frac{1}{4}$
2.—Pennsylvania, Philadelphia—Bow, J. W. Barr; 2, W. H. Rennert; 3, A. L. Kappes; stroke, H. Conrad.....	Not taken
3.—Malta, Philadelphia—Bow, J. Rabe; 2, C. Giller; 3, J. Dunston; stroke, W. Harper.....	Withdrawn

SIXTH HEAT.

1.—London Rowing Club, England—Bow, R. Labat; 2, F. Gulston; 3, A. Trower; stroke, J. Howell.....	8.55
2.—Northwestern, Riverdale, Illinois—Bow, W. B. Curtis; 2, H. Smith; 3, J. Killorin; stroke, C. Corning.....	8.59 $\frac{1}{4}$
3.—Atalanta, New York city—Bow, W. H. Downs; 2, H. W. Rodger; 3, C. A. Lyon; stroke, J. E. Eustis.....	Withdrawn

SEVENTH HEAT.

1.—Trinity College, Cambridge University, England—Bow, J. A. Jamieson; 2, G. S. N. Man; 3, W. B. Close; stroke, J. T. Penrose.....	9.06 $\frac{3}{4}$
2.—Oneida, Burlington, New Jersey—Bow, R. N. Weston; 2, G. A. Hunt; 3, F. G. Woodington; stroke, F. H. Deacon.....	Not taken

SECOND DAY.

SINGLE SCULLS—TRIAL HEATS.

FIRST HEAT.

1.—J. McCartney, Friendship, New York.....	11.01 $\frac{3}{4}$
2.—G. E. Man, Argonauta, New Jersey.....	11.13
3.—G. W. Young, Crescent, Philadelphia.....	11.26
4.—F. Henderson, Vesper, Philadelphia.....	11.33

SECOND HEAT.

1.—E. D. Mills, Jr., Atalanta, New York.....	10.59 $\frac{1}{4}$
2.—J. M. Holsman, University, Philadelphia.....	11.40 $\frac{3}{4}$
3.—J. B. Leibert, Vesper, Philadelphia.....	Not taken
4.—W. B. Curtis, Northwestern, Riverdale, Illinois.....	Withdrawn

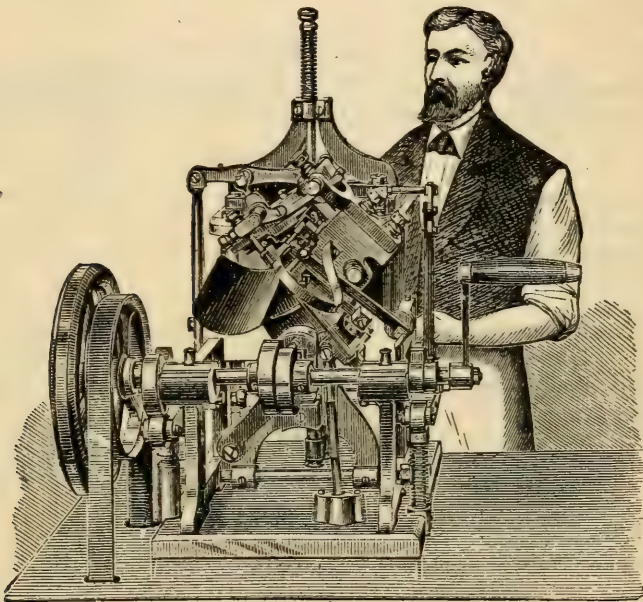
THIRD HEAT.

	Time.
1.—S. J. Gormley, Quaker City, Philadelphia.....	10.52 $\frac{3}{4}$
2.—R. A. Robinson, Union Springs, New York.....	10.56
3.—C. P. Tasker, Crescent, Philadelphia.....	11.15 $\frac{3}{4}$

FOUR-OARED SCULLS—SECOND TRIAL HEATS.

FIRST HEAT.

1.—Beaverwyck, Albany, New York—Bow, J. T. McCormick; 2, J. H. McEntee; 3, R. T. Gorman; stroke, T. J. Gorman.....	9.07
2.—Eureka, Newark, New Jersey—Bow, J. Young; 2, W. Byno; 3, P. Young; stroke, J. Angleman.....	9.13



JOHNSON'S TYPE CASTING MACHINE, IN MACHINERY HALL.

SECOND HEAT.

1.—Watkins, New York—Bow, A. McLafferty; 2, F. Stoll; 3, A. Tyrell; stroke, F. Wakeman.....	9.01 $\frac{1}{4}$
2.—Trinity College, Cambridge, England—Bow, J. A. Jamieson; 2, G. S. N. Man; 3, W. B. Close; stroke, J. T. Penrose.....	Not taken
3.—Columbia College, New York city—Bow, E. E. Sage; 2, G. Griswold; 3, C. S. Boyd; stroke, J. T. Goodwin.....	Withdrawn

THIRD HEAT.

1.—London Rowing Club, England—Bow, R. Labat; 2, F. Gulston; 3, A. Trower; stroke, J. Howell.....	8.51 $\frac{1}{4}$
2.—Yale College, New Haven, Connecticut—Bow, R. J. Cook; 2, W. W. Collin; 3, D. H. Kellogg; stroke, J. Kennedy.....	8.52 $\frac{1}{4}$

THIRD DAY.**SINGLE SCULLS—TRIAL HEATS.**

FOURTH HEAT.

1.—C. E. Courtney, Union Springs, New York.....	11.29 $\frac{3}{4}$
2.—P. C. Ackerman, Atalanta, New York.....	Not taken
3.—J. Magin, Waverly, New York.....	Withdrawn
4.—J. Kennedy, Yale College, Connecticut.....	Withdrawn

FIFTH HEAT.

	Time.
1.—F. E. Yates, Union Springs, New York.....	12.05½
2.—J. B. McBeath, Quaker City, Philadelphia.....	12.07½
3.—C. Megargee, College, Philadelphia.....	12.15¼
4.—H. Young, Malta, Philadelphia.....	13.10

FINAL HEAT FOUR-OARED SHELLS

1.—Beaverwyck, Albany, New York—Bow, J. T. McCormick; 2, J. H. McEntee; 3, R. T. Gorman; stroke, T. J. Gorman.....	9.06
2.—London Rowing Club, England—Bow, R. H. Labat; 2, F. S. Gulston; 3, A. Trower; stroke, J. Howell.....	9.06½
3.—Watkins, New York—Bow, A. McLafferty; 2, F. Stoll; 3, A. Tyrell; stroke, F. Wake-man.....	9.16

SIXTH HEAT—SINGLE SCULL.

1.—W. G. Thomas, Philadelphia.....	11.36¼
2.—G. W. Parker, Quaker City, Philadelphia.....	12.40½

SEVENTH HEAT.

1.—H. McMillan, Vesper, Philadelphia.....	Not taken
2.—T. M. Montgomery, Northwestern, Illinois.....	Withdrawn
3.—J. B. Mingus, Vesper, Philadelphia.....	Withdrawn

EIGHTH HEAT.

1.—F. Pleasanton, Quaker City, Philadelphia.....	12.00
2.—F. G. Woolman, Oneida, New Jersey.....	Withdrawn
3.—R. H. Labat, London Rowing Club, England.....	Withdrawn

FOURTH DAY.

SINGLE SCULLS—SECOND TRIAL HEATS.

FIRST HEAT.

	Time.
1.—C. E. Courtney, Union Springs, New York.....	10.31
2.—F. E. Yates, Union Springs, New York.....	Withdrawn
3.—S. J. Gormley, Quaker City, Philadelphia.....	Withdrawn
4.—F. Pleasanton, Quaker City, Philadelphia.....	Withdrawn

SECOND HEAT.

1.—J. McCartney, Friendship Club.....	10.32½
2.—E. Mills, Jr., Atalanta.....	10.44
3.—J. B. Mingus, Vesper.....	10.54

PAIR-OARS—FIRST HEAT.

1.—Atalanta, New York—Bow, W. H. Downs; stroke, J. E. Eustis.....	9.45
2.—Nautilus, New York—Bow, Roache; stroke, Walshe.....	9.58
3.—London Rowing Club, England—Bow, E. A. Trower; stroke, G. O. Howell.....	Withdrawn
4.—Argonauta, New Jersey—Bow, E. Smith; stroke, F. C. Eldred.....	Withdrawn

SECOND HEAT.

1.—Northwestern, Illinois—Bow, John Killorin; 2, stroke, Henry Smith.....	10.02½
2.—Northwestern, Illinois—Bow, W. B. Curtis; stroke, C. T. Corning.....	10.08¼
3.—London Rowing Club, England—Bow, F. S. Gulston; stroke, R. H. Labat.....	Withdrawn

COLLEGE GRADUATES.

1.—Dublin University Rowing Club, Ireland—Bow, G. F. Ferguson; 2, C. Barrington; 3, C. B. Barrington; stroke, G. H. Hickson.....	10.39½
No competitor.	

SINGLE SCULLS—FINAL HEAT.

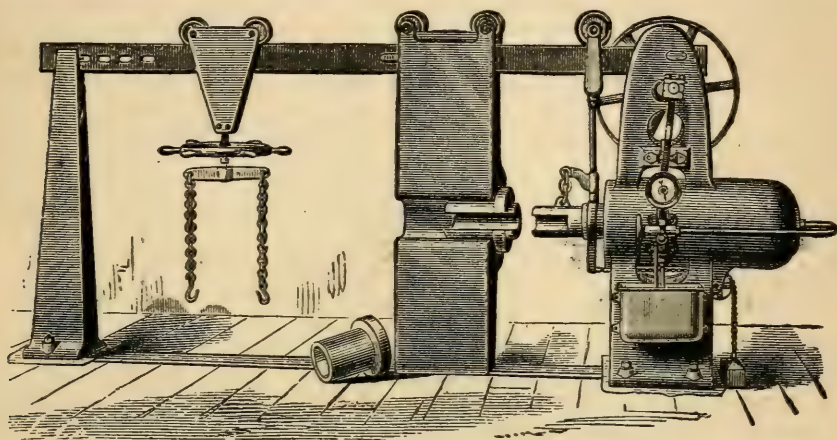
	Time.
1.—C. E. Courtney, Union Springs, New York.....	10.48½
2.—J. McCartney, Friendship, New York.....	11.12½

FIFTH DAY.

DOUBLE SCULLS—TRIAL HEATS.

FIRST HEAT.

1.—Atalanta, New York—Bow, P. C. Ackerman; stroke, H. W. Rodger.....	10.29¾
2.—Vesper, Philadelphia—Bow, H. McMillan; stroke, J. B. Mingus.....	10.43
3.—Northwestern, Illinois—Bow, W. B. Curtis; stroke, C. T. Corning.....	10.56
3.—Oneida, New Jersey.....	Not taken



THE SELLERS HYDROSTATIC WHEEL-PRESS, IN MACHINERY HALL.

SECOND HEAT.

	Time.
1.—Union Springs, New York—Bow, L. E. Yates; stroke, C. E. Courtney.....	10.17
2.—Crescent, Philadelphia—Bow, G. Young; stroke, C. P. Tasker.....	10.34
3.—Vesper, Philadelphia—Bow, J. B. Leibert; stroke, F. Henderson.....	10.54½

PAIR-OARS—FINAL HEAT.

1.—Northwestern, Illinois—Bow, J. Killorin; stroke, H. Smith.....	10.02
2.—Atalanta, New York—Bow, W. H. Downs; stroke, J. E. Eustis.....	10.16

INTERCOLLEGIATE.

1.—Yale College, New Haven, Connecticut—Bow, R. J. Cook; 2, W. W. Collin; 3, D. H. Kellogg; stroke, J. Kennedy.....	9.10¾
2.—Columbia College, New York City—Bow, E. E. Sage; 2, G. Griswold; 3, C. S. Boyd; stroke, J. T. Goodwin.....	9.20
3.—Trinity College, Cambridge, England—Bow, J. A. Jamieson; 2, G. S. N. Man; 3, W. B. Close; stroke, J. T. Penrose.....	Not taken

DOUBLE SCULLS—FINAL HEAT.

1.—Union Springs, New York—Bow, F. E. Yates; stroke, C. E. Courtney.....	9.52½
2.—Atalanta, New York—Bow, P. C. Ackerman; stroke, H. W. Rodger.....	9.54

This closed the Amateur Races.

The Professional Races began on Monday, September 4th, and closed on Wednesday, September 6th. The following is an account of the work of the three days:

FOUR-OARED SHELLS.

FIRST HEAT.

Lying so far above the start, it was an utter impossibility for any one to judge exactly who had the advantage of the start, but from the steamer it looked as if the New York crew had a slight bit the best of it. As they neared the end of the Island it was seen that the Americans had the lead, and they passed the point three-quarters to the fore. Before the willows, and at the end of the clump of trees, London steered into the west shore, and made a brave spurt, which put the bows on even terms, and this position was held right up to the buoys. This half of the race was clearly in favor of the New York crew, who had rowed the best stroke by far, England rather ragged, and splashing to such an extent as to surprise the people, who rather expected to see the perfection of oarsmanship from these four men, as they have been winning at all of the prominent regattas in England prior to their departure for this country. In making the turn at the Falls Bridge the Londoners straightened out first, and before the New York men could point their boat down the river were leading by a good three lengths. The Americans pulled over to the west shore, and spurted for the lead, but the Thames men, without any apparent difficulty, maintained their commanding position, and could have increased it if they had so desired, and they crossed the line the easiest kind of winners in 18.21½ minutes. The half distance was made in 8.15; the Americans 15½ seconds later. The victors were heartily cheered at the finish by the boats and the spectators.

	Time
1.—Thames Crew, London, England—Bow, W. Spencer; 2, Henry Thomas; 3, J. Higgins; stroke, Thomas Green.....	18.21½
2.—New York Crew, New York—Bow, F. Plaisted; 2, J. Flauris; 3, J. Mahony; stroke, J. W. Maxwell.....	18.37

SECOND HEAT.

The start for this heat between the famous Paris crew from St. John's, New Brunswick, and the comparatively unknown Fishermen, from Halifax, was effected with the latter crew slightly in advance, and at every stroke they rapidly drew away from their more experienced opponents. Youth and vigor were telling. The great four who had been pitted against the fastest crew England possessed, and won, it was plainly to be seen had lost not only their stroke, but also the strength for which they were formerly so noted. They have been rowing together for seven or eight years, and now have gone stale. No. 3 especially pulled in a style that has not been shown by any man since the start of the regatta. It seemed as if he would dislocate his neck at every tug at his oar; it was almost painful to look at. The Fishermen, without outriggers to their boat, were making her plough through the water in splendid style. The buoys were reached in 8.51, and the winners did not exert themselves coming home. The Paris labored earnestly, but the steering, if nothing else, would have defeated them badly. On the return half they got clear east of the buoys, and then pulled through the heavy grass to regain their position. After this they steered so far to the west that it was supposed that they were going down on the west side of the island. Noticing their mistake they pulled through boats, hitting stakes, and just straightened out in time to see the red flag dropped. The time, as announced, was 17.58 minutes, and will have to go on record as correct, but it does not at all tally with that made by several competent gentlemen on board of the Belmont. The time of the losers was not taken.

	Time
1.—Fisherman's Crew, Halifax, Nova Scotia—Bow, O. Smith; 2, C. Nickerson; 3, W. Smith; stroke, J. Nickerson.....	17.58
2.—Paris Crew, St. John, New Brunswick—Bow, G. Price; 2, G. Price; 3, S. Hutton; stroke, R. Fulton.....	Not taken

THE WHALEBOATS.

Now followed what proved to be the only really interesting or closely-contested event of the day. There were three entries, all from New Bedford, Massachusetts. The "Sixth Ward" had the west position, the Vesta the centre, and the Centennial the east. The first-named took the lead at the word and held it past the island, amid the cries of encouragement and loud applause from either shore. The movements of the coxswains of the different boats were thoroughly in

earnest in coaching their crews, and their movements as they assisted the stroke-oar and encouraged the men were very odd and peculiar, and entirely new to these waters; but as the three were similar in their exertions, it must have been all right and proper. The Sixth Warders were still leading at the mile-post, when both the Vesta and Centennial spurted and took the lead, and a hot race followed, all of the crews plucky and staunch, up to the buoys. The stake-boats were turned very nearly at the same time, and this was the position opposite Laurel Hill landing, when the Vesta coxswain called on his brave and gallant crew, and they responded with a will, and within a hundred yards had a lead of a length. From this time out the race belonged to the Vesta, and the excitement was to see who were to be second. It was close work all the way down to the finish, the three crews struggling manfully and pulling for dear life. The Centennial managed to get just a little to the front of No. 6, and was but two seconds ahead when Mr. Madeira raised the flag.

	Time.
1.—Whaleboat Vesta.....	25.51
2.—Whaleboat Centennial.....	26.01
3.—Whaleboat Sixth Ward.....	26.03



"THE DEATH OF THE ELK"—SWEDISH GROUP IN THE MAIN BUILDING.

SINGLE SCULLS—TRIAL HEATS.

FIRST HEAT.

England was represented in this heat by Thomas, Canada by Hanlon, and America by Coulter. The start was fair and even. Hanlon, however, at once pulled away, Coulter second, and the Londoner well to the rear, and he drew out before the island was passed. The Canadian was far ahead before the mile-post was reached, his lead being at least three lengths. Coulter appeared to have no vim, and was apparently making no extra exertion to win the race. At any rate he was beaten in the following time:

	Time.
1.—Hanlon, Toronto.....	21.34
2.—Coulter, Pittsburgh.....	22.24
3.—Thomas, London.....	Not taken

SECOND HEAT.

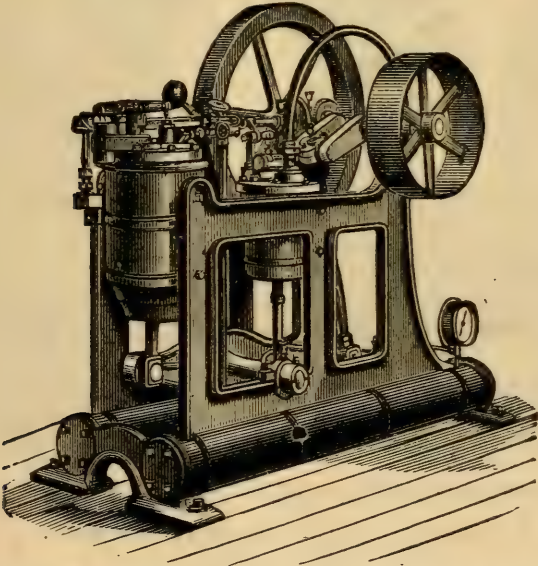
Out of the three entries for this heat, O. Smith, of the Halifax crew, withdrew, leaving Brayley, from St. John, and Green, of London, to contest. Soon after the start Green pulled off the course, and Brayley rowed over alone.

	Time.
1.—Brayley, St. John.....	22.26¼
2.—Green, London.....	Drew out
3.—O. Smith, Halifax.....	Withdrawn

THIRD HEAT.

Ellis Ward, of Newburgh, New York, was placed on the right, Spencer, of London, in the centre, and Peel, of Philadelphia, on the outside. It was thought that this heat would be a close one between Ward and Spencer, as it was understood that the London men were of the opinion that the latter was good enough to take second money in the regatta, Higgins to take first. But like the preceding ones, it was all one-sided, without a single interesting feature, save a slight struggle between Spencer and Peel. Ward took the lead from the start, and was never headed at any time during the race. He was three lengths to the front of Spencer at the stake-boats, and after the turn was made, pulled rapidly away for the mile-post, where he stopped for a few seconds to rest himself. When he resumed rowing it was palpable that neither of his opponents were his equal, and he won as he liked. Peel and Spencer had a spurt together for a short distance, but the latter was about pumped out, and slackened up, when the Philadelphian passed him.

	Time.
1.—E. Ward, New York.....	22.20½
2.—Peel, Philadelphia.....	23.47
3.—Spencer, London.....	24.20



BRAYTON'S HYDRO-CARBON ENGINE, EXHIBITED IN MACHINERY HALL.

FOURTH HEAT.

The two scullers, Louther and Morris, from the Iron City, who were to contest this heat for the honor of their native city and country, with Higgins, of London, the best in England, as they pulled up to the starting point were greeted with repeated cheers. When the word was given, Higgins jumped off with the lead, being, at the first hundred yards, a half length in advance of Louther, and as much more ahead of Morris. Opposite the centre of the island Louther spurted and drew up even with the London man, Morris dropping still farther behind. The two foremost men still stood on equal terms at Sedgeley, Louther sheering towards the centre position of Higgins, being repeatedly warned by the umpire, and at each call trying to keep out of the way. Nearing the willows the Pittsburgh oarsman gained, and had the best of the race by about three-quarters of a length, and here both men pulled out of their course and a foul ensued, the oars touching several times. When the boats were extricated Louther took the lead, turning

the stake-boats first, and reaching home some distance ahead. Higgins, after the foul, did not make any attempt to win, and rowed just hard enough to keep ahead of Morris. When the three boats had crossed the line Higgins entered a claim of foul, and the umpire decided that he did not consider the foul intentional on the part of either man, and ordered the heat to be rowed over again this morning at ten o'clock by Louther and Higgins:

	Time.
1.—Louther, Pittsburgh (foul).....	21.35
2.—Higgins, London (foul).....	21.59
3.—Morris, Pittsburgh.....	22.35

FIFTH HEAT.

McKiel and Plaisted were the only starters in this, the last heat of the day. Both men kept well together up to the willows, when McKiel, in trying to pass in front of Plaisted, ran into him, and the umpire gave the heat to the latter.

	Time.
1.—Plaisted, New York.....	Not taken
2.—McKiel, New York.....	Foul
3.—Smith.....	Withdrawn

SECOND DAY.

SINGLE SCULLS—SECOND TRIAL HEATS.

FIRST HEAT.

In the drawing the night before it had fallen to the lot of Ellis Ward, of New York, to be pitted against Brayley, of St. John's, New Brunswick, who had a walk over for his heat the day previous. From the reputation of the first-named oarsman, who is well known from Maine to California, it was thought that the American colors would be to the fore in this heat. Mr. Curtis started them fairly, and there was no advantage. Ward was pulling two strokes slower than the St. John's man, who was making thirty-four to the minute, and he had gained the advantage of a half length by the time the end of the island was reached, and pulling regularly and with considerable power, the length was a length and a little over at Sedgeley. Opposite the willows and a little above, Ward spurted, and, hugging the west shore, drew away from his opponent two lengths. Both of the contestants were now in rough, lumpy water, and the advantages of position and water were much more equal, heretofore Ward having much smoother water to row in. Brayley was still keeping up his stroke at thirty-four, while Ward had dropped down to thirty. The Canadian man gained as they drew towards the stake-boats, the American turning about a length and a half in advance. After getting pointed down towards home Brayley made a vigorous spurt, and, rowing in admirable form and with good judgment, gained on Ward at every tug of the oars. Before Laurel Hill landing was passed the two had joined issue, and for a half dozen strokes it was a fine contest, but as Brayley got the bow of his shell in front about two feet the American lost all power and strength, and it was plain to be seen that he had done all he could do that day. He pulled pluckily throughout the rest of the race, and pluckily made several efforts at a spurt. They were feeble, and it was almost painful to see the exertions of the gallant fellow, as he bent to his work and endeavored to regain the lead. It was of no avail, however; Brayley was much the stronger man and best oarsman of the two, and crossed the line seventeen seconds ahead of the once-famous oarsman of Cornwall-on-the-Hudson.

	Time.
1.—A. Brayley, St. John's, New Brunswick.....	22.06½
2.—E. Ward, New York.....	22.23½

SECOND HEAT.

After the fiasco of the morning row-off between Higgins and Louther, the second heat of the second trial-heats of singles was looked forward to with considerable interest, as it was hoped and thought by the majority that "Pat" would row over the course in such excellent form and make a record of time that would give some color to the claims of his friends that he was as good a man as any in the world. A few who were better up in rowing matters, and had watched the young Toronto man, were confident that he would have an easy victory over either of his competitors. He had health, age, and an honest ambition to help him, three very requisite qualities

in the oarsman of the present day, and in addition to these his style is fully the equal of any man on the river. Hanlon was fortunate enough to draw the favored position on the west side Plaisted, the New Yorker, in the centre, and the Pittsburgher, who so suddenly shot up to glory, on the blue or east side of the course. When Mr. Curtis, in his sharp, decisive way, gave the command of start, it rather looked as if Hanlon had dipped his oars somewhat in advance of the word "Go." At all events he immediately assumed the lead, with the New Yorker second, and the renowned Louther third. Going to the head of the island the Canadian was leading Plaisted a good two lengths, and the Pittsburgh man one more. They went along strung out at about the same distance to Sedgely, where the New Yorker had gained a little, and the end of the string held his own. Directly opposite the one-mile post Hanlon steered out into the centre of the river, and Plaisted assumed the last position which he had vacated; Louther in the meantime having dropped to six lengths in the rear. As the first two neared the stake-boats, Plaisted made a desperate spurt and closed up considerably, and making an excellent turn, much better than



GROUP OF PALM TREES IN HORTICULTURAL HALL.

Hanlon, he straightened out but a little less than a length behind, and right here was seen the difference between the two men, as Hanlon for the first time in the race set himself to work, and with the most consummate ease drew away from Plaisted as if he had been a plaything, and at the Laurel Hill landing was leading by three lengths, and conscious of his ability to win the race, he rested on his oars opposite Sedgely landing, and wiped his hands on his shirt. The delay gave Plaisted an opportunity of drawing closer, but that was all. The race had never been in doubt from the start, and they finished in the following order :

	Time.
1.—T. Hanlon, Toronto, Canada.....	21.54 $\frac{1}{4}$
2.—F. Plaisted, New York, N. Y.....	22.27 $\frac{1}{4}$
3.—P. Louther, Pittsburgh, Pa.....	23.14

PAIR-OARS—TRIAL HEATS.

FIRST HEAT.

The four London professionals were drawn for this heat, and as it was well known that Green and Thomas, who are the champion pair-oars of England, would win, there was but little interest

taken in the contest. The two crews pulled at a good pace over the course, but shortly after the start the champions went to the front, and were never headed.

	Time.
1.—T. Green and H. Thomas, London.....	21.44 $\frac{1}{4}$
2.—J. Higgins and W. Spencer, London.....	21.54 $\frac{1}{2}$

SECOND HEAT.

The last heat of the day brought to the start two of the great Ward brothers, Josh and Gil, and the Faulkner-Regan crew from Boston. Plaisted and Maxwell, of New York, after the severe race of the former with Hanlon, considered it advisable to withdraw. A beautiful start was effected when the word was given. The Wards by the time the island was passed, by dint of extremely tough work and good steering, had got ahead about a half, still continuing the same lead at Sedgeley, and at the willows had succeeded in giving the Bostonians their wash. The latter, however, did not approve of this state of affairs, and pulled to the east to avoid it. In doing this they lost ground, and at the mile-post had fallen back to a length and a half. Between this point and the Laurel Hill landing the Boston pair spurted and closed the gap to within a half. The Wards finally reached the stake-boats in advance, but made an execrable turn, and when the contestants were both around Faulkner and Regan were in front. Like Ellis in his heat, as soon as they were passed the brothers let down, and were beaten a mile from the home boats. The Boston men just held their own the remaining portion of the course, and were very easy winners.

	Time.
1.—G. Faulkner and P. Regan, Boston.....	20.28
2.—J. and G. Ward, New York.....	20.44 $\frac{1}{2}$

THIRD AND LAST DAY.

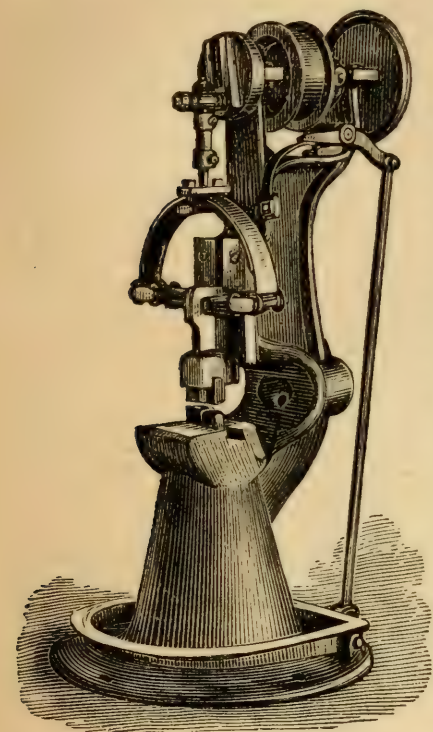
The last day of the grand international regatta, in spite of the importance of the final heats between the four-oared shells, singles, and pairs, was but sparsely attended. To be sure, there were thousands of spectators present, but the enthusiasm and general manifestations of approbation and delight were slight compared to the scene witnessed at the close of the London-Yale, and Beaverwyck-London heats. The assemblage seemed to have the correct idea that when the contestants started on the course there was no probability of an honorable, manly struggle for superiority, and, while they were perfectly willing to cheer and applaud the victors, there was always a reasonable doubt in their minds that the hindmost boat may have won, and nothing could be settled until the umpire gave his decision. The word "London" seems to have been impressed upon the minds of the American public in aquatic matters as the synonym of "foul," and whenever any of these gentlemen, either amateur or professional, were entered, the majority of those who followed the oarsmen on the course rather expected that there would be some difficulty that would end the race unsatisfactorily. The proof of this was easy to be seen in the cries and shouts that greeted the Faulkner-Regan crew as they passed the line a quarter of a mile to the front of the champion pair-oars of England. "There is no foul this time!" "Foul! foul!" from the entire assemblage. The English oarsmen must certainly now be satisfied that they can have all the justice that can be looked upon in any quarter of the globe in this country. and though the *judgment* of Mr. Curtis has been questioned, there is not the slightest hint from *gentlemen* but that he has decided all cases exactly as he has viewed them, acting as an umpire, not as an oarsman or an American. Now that the regatta is over the retrospect simply shows that professional oarsmen should never be invited to attend or participate in regattas which depend on the subscriptions of citizens who love the sport to form purses to gather these men together. If the regatta had closed with the contests between amateurs, the people would have been much better satisfied than they are at present. The final heats to-day were not interesting after the start, and were not a fitting finale to the grandest aquatic event of the decade.

FINAL HEAT—FOUR-OARED SHELLS.

The committee having decided that the four-oared shells should be the first race of the day, the two crews, the Thames and the Halifax, drew up towards the starting point, the former having the best position—the west—and the latter placed some distance towards the east. Mr. Umpire Curtis was a little quick in giving the word, and the London men caught his voice the

first, and had made three strokes before the Haligonians understood the situation. Both crews made a remarkably fast stroke, the Englishmen forty-eight to the minute, and their opponents forty-six. The race was severe and sharp from the start, but the colonists, by the middle of the island, had a lead of a half a length. They then dropped to forty-two and the London to forty-four. Opposite Sedgely the cockneys sheered into the west shore, and Halifax increased the

lead to a length and a half. At the willows a half more had been gained, London still keeping up to forty-four and Halifax dropping to thirty-six. Before the mile-post the former pulled directly into the latter's wash, and spurted, making a great effort to reach their leaders. They gained half a length and were pulling up gradually, and there was every appearance of a foul. Before they could come close enough for this purpose the Halifax people pulled over to the east shore to make the turn. London, who were a length behind when the stake-boats were reached, straightened up at least a length and a half ahead, and now the struggle commenced. Both crews drew away towards the west shore, and putting forth every bit of strength there was in them, pulled for home. Halifax gained so rapidly that it was hardly conceivable that they had the best four in England ahead of them, and just here it was where the mistake was made by their bow oar; he did not straighten up quite soon enough, and got into London's water, and as they neared them the latter refused to give an inch, and a foul necessarily followed. An appeal was made by both crews, and they must have understood the umpire to say "Go on," as after drawing apart London started, and had covered two lengths before the Halifax men seemed to understand the situation. Then, buckling to their work, they followed their opponents and at each stroke neared them.



DEAD-STROKE POWER HAMMER, IN
MACHINERY HALL.

When the tug came the Londoners were not there, and as soon as the fishermen put the nose of their boat in front they ceased rowing and paddled over the remainder of the course. Below Columbia bridge both crews were listened to by the umpire, and he then gave the race to the Thames crew on a foul.

FINAL HEAT—SINGLE SCULLS.

There is but little to say about this race, except that Hanlon, of Toronto, who has proved himself to be one of the best single scullers in America, won from the start from Brayley, of St. John's. The latter pulled a most plucky stern chase, but he is evidently not the equal of his younger and more scienced opponent. The time for the winner was 21.09 minutes; Brayley, 21.16 $\frac{3}{4}$.

PAIR OAR—FINAL HEAT.

It was hardly looked forward to as a good race between Green and Thomas and the Faulkner-Regan pair, after the hot work the former had had in the first race. Still the Englishmen for three-quarters of a mile put forth all the power that was in them, and pulled away up to fifty, the Bostonians only making forty-four, and at this rate they led from the start, and by the time the willows were passed, the Londoners slackened up, and never made an attempt to win the race, contenting themselves with second money. Faulkner-Regan covered the three miles in 21.20 minutes.

CHAPTER XXIII.

THE LIVE-STOCK DISPLAYS.

Arrangements for the Display of Live-stock—Regulations of the Bureau of Agriculture, governing these Exhibits—Description of the Grounds—The Horse Show—The Noted Animals—The Dog Show—A Fine Collection of Canines—The Cattle Show—A Superb Exhibit—Display of Sheep, Swine and Goats—Description of the Animals—The Poultry Show—The Scene in the Pomological Annex.

THE arrangements for the display of live-stock, in connection with the Centennial Exhibition, were intrusted by the Executive Committee to the Bureau of Agriculture. The following regulations for these displays were thereupon issued by the Chief of the Agricultural Department, with the approval of the Director-General of the Exhibition :

UNITED STATES CENTENNIAL COMMISSION.
INTERNATIONAL EXHIBITION,
1876,
PHILADELPHIA.
BUREAU OF AGRICULTURE.

Live-Stock.

1.—The live-stock display at the International Exhibition will be held within the months of September, October, and November, 1876; the periods devoted to each family being as follows:

Horses, mules, and asses, from September 1st to 14th.

Dogs, from September 4th to 8th.

Horned cattle, from September 21st to October 4th.

Sheep, swine, and goats, from October 10th to 18th.

Poultry will be exhibited from October 27th to November 6th.

2.—Animals to be eligible for admission to the International Exhibition must be, with the exception of trotting stock, walking horses, matched teams, fat and draught cattle, of such pedigree that the exhibitor can furnish satisfactory evidence to the Chief of Bureau, that—

As applied to thoroughbred horses, as far back as the fifth generation of ancestors on both sides, they are of pure blood, and of the same identical breed.

As to short-horned cattle, they are registered in either Allen's, Alexander's, or the English herd-books.

As to Holsteins, Herefords, Ayrshires, Devons, Guernseys', Britannys, Kerrys, and other pure breeds, they are either imported or descended from imported animals on both sides.

As to Jerseys, that they are entered in the Herd Register of the American Jersey Cattle Club, or in that of the Royal Agricultural Society of Jersey.

As to sheep and swine, they are imported or descended from imported animals, and that the homebred shall be of pure blood as far back as the fifth generation.

3.—The term breed, as used, is intended to comprehend all family divisions where the distinction in form and character dates back through years of separation; for instance, it is held that the progeny of a pure-blood Jersey and a pure-bred Guernsey is not a thoroughbred but a crossbred animal, and as such is necessarily excluded.

4.—In awarding prizes to animals of pure blood, the judges will take into consideration chiefly the relative merits as to the power of the transmission of their valuable qualities; a cardinal object of the Exhibition being to promote improvement in breeding stock.

5.—In case of doubt relative to the age of an animal, satisfactory proof must be furnished, or the animal will be subject to examination by a veterinary surgeon; and should the state of dentition indicate that the age has not been correctly stated, the person so entering as an exhibitor will be prohibited from exhibiting in any class.

6.—The forms of classification for awards, as given under each head, are intended (excepting in the case of trotting stock, walking horses, matched teams, fat and draught cattle) to apply to the animals of any pure breed that are entered for competition.

7.—The Exhibition being open to the world, it is of the first importance that the best of their kind only be brought forward, as the character of the stock will be judged by the general average of those exhibited.

8.—Exhibitors will be expected to furnish their own attendants, on whom all responsibility of the care of feeding, watering, and cleaning the animals, and also of cleaning the stalls will rest.

9.—Forage and grain will be furnished at cost prices, at depots conveniently located within the grounds. Water can be had at all hours, ample facilities being provided for its conveyance and distribution throughout the stock-yards.

10.—Exhibitors must supply all harness, saddlery, vehicles, and other appointments, and all such must be kept in their appointed places.

11.—The Commission will erect ample accommodation for the exhibition and protection of live-stock, yet contributors who may desire to make special arrangements for the display of their stock, will be afforded facilities at their own cost. Fractionous animals, whether stallions, mares with foals, or bulls, will be provided with stalls of suitable character.

12.—All stalls will be regularly and distinctly numbered; corresponding numbers on labels, of uniform character, will be



SEVRES VASE—IN MEMORIAL
HALL.

given to each exhibitor ; and no animal will be allowed to pass from its stall without its proper number attached.

13.—Numbers *alone* will distinguish stock in the show-yards, preceding the awards of prizes.

14.—The judges of live-stock will make examination of all animals on the opening day of each serial show, and will for that day have exclusive entrance to the show-yard.

15.—No premium will be awarded an inferior animal, though there be no competition.

16.—All animals will be under the supervision of a veterinary surgeon, who will examine them before admission, to guard against infection, and who will also make a daily inspection and report. In case of sickness, the animal will be removed to a suitable enclosure especially prepared for its comfort and medical treatment.

17.—When animals are taken sick, the exhibitors may either direct the treatment themselves, or allow the veterinary surgeon appointed by the Commission to treat the case. In this latter event, the exhibitor will be charged for all expenses incurred. All possible care will be taken of animals exhibited, but the Commission cannot be held responsible for any injury or accident.

18.—A ring will be provided for the display and exercise of horses and cattle.

19.—On the last day of each serial show, a public auction may be held of such animals as the exhibitors may desire to sell. Animals may be sold at private sale at any time during their exhibition. During the period of a serial show, no animal, even in the event of being sold, will be allowed to be definitely removed.

20.—An official catalogue of the animals exhibited will be published.

21.—Exhibitors of thoroughbred animals must, at the time of making their entries, file with the Chief of the Bureau a statement as to their pedigree, affirmed or sworn to before an officer authorized to take affidavits, and the papers so filed shall be furnished to the jury of experts.

22.—The ages of live-stock must be calculated up to the opening day of the exhibition of the class to which they belong.

23.—Sheep breeders, desiring to exhibit wool, the products of the flocks, will display not less than five fleeces.

24.—All animals must be entered according to the prescribed rules as given in forms of entry, which forms will be furnished on application to the Chief of the Bureau of Agriculture.

Breeding Horses.

Mares entered as breeding animals must have had foals within one year of the show; or, if in foal, certificates must be furnished to that effect.

All foals exhibited must be the offspring of the mare with which they are at foot.

Awards will be made to *respective* breeds for:

Pure bred turf stallions, six years and over.

Pure bred turf stallions, over four years and under six years.

Pure bred turf stallions, over two years and under four years.

Pure bred turf mares, six years and over.

Pure bred turf mares, over two and under six years.

Awards will be made for:

Trotting stallions, six years and over.

Trotting stallions, over four years and under six.

Trotting stallions, over two years and under four.

Pure bred draught stallions, six years and over.

Pure bred draught stallions, over four years and under six.

Pure bred draught stallions, over two years and under four.

Pure bred draught mares, six years and over.

Pure bred draught mares, over two and under six years.

Trotting brood mares, six years and over.

Trotting fillies, over four years and under six.

Trotting fillies, over two years and under four.

Running and Trotting Horses

Shall be judged according to their record up to August 15th, 1876, due regard being had to present condition.

Awards will be made for :

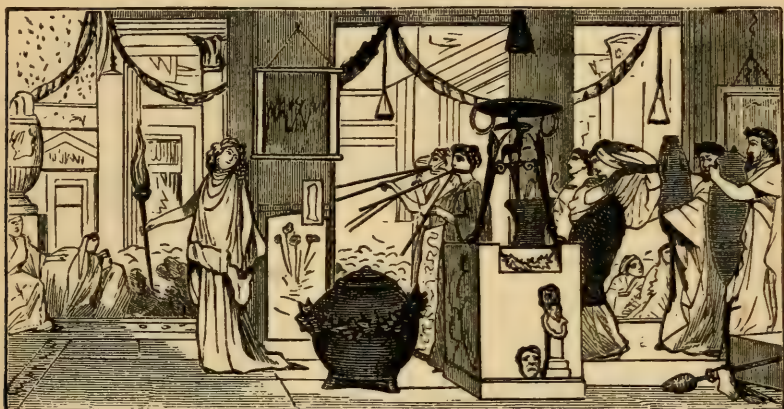
Running horses having made fastest record.

Trotting stallions having trotted a mile within two-thirty.

Mares and geldings having trotted a mile within two-twenty-five.

Walking Horses.

Fast-walking horses, whether bred for agricultural purposes or the saddle, will compete in the ring for awards.



THE VINTAGE FESTIVAL, BY ALMA TADEMA, IN MEMORIAL HALL.

Matched Teams.

Awards will be made for :

Matched teams having trotted a mile in two-thirty-five.

Matched stallions for heavy draught, over sixteen hands high, and over 1500 pounds weight each.

Matched geldings for heavy draught, over sixteen hands high, and over 1500 pounds weight each.

Matched mares for heavy draught, over fifteen hands high, and over 1400 pounds weight each.

Matched mules for heavy draught, over fifteen and a half hands high, and over 1300 pounds weight each.

Breeding Asses.

Awards will be made to *respective* breeds of :

Pure bred jacks, over six years.

Pure bred jacks, over three years and under six.

Pure bred she-asses, over six years.

Pure bred she-asses, over three years and under six.

Neat Cattle.

No cow will be eligible for entry unless accompanied with a certificate that, within fifteen months preceding the show, she had a living calf, or that the calf, if born dead, was born at its proper time.

No heifer entered as in calf will be eligible for a prize unless accompanied with a certificate that she has been bulled before the first of April, or presents unmistakable proof of the fact to the judges.

No bull above one year old can be entered unless he have a ring in nose, and the attendant be provided with a leading stick, which must be used whenever the animal is taken out of stall.

Awards will be made for the best herd of each *respective* breed, consisting as follows :

One bull.

Four cows, none under fifteen months.

Neat cattle, of each *respective* breed, will compete individually for awards.

Bulls, three years and over.

Bulls, over two years and under three years.

Bulls, over one year and under two years.

Cows, four years and over.

Cows, over three years and under four years.

Cows or heifers in calf, over two years and under three years.

Yearling heifers.

A sweepstake award will be made for the best bull of any breed.

A sweepstake award will be made for the best cow of any breed.

Fat and Draught Cattle.

Animals entered as fat and draught cattle need not be of pure blood, but will compete on individual merits.

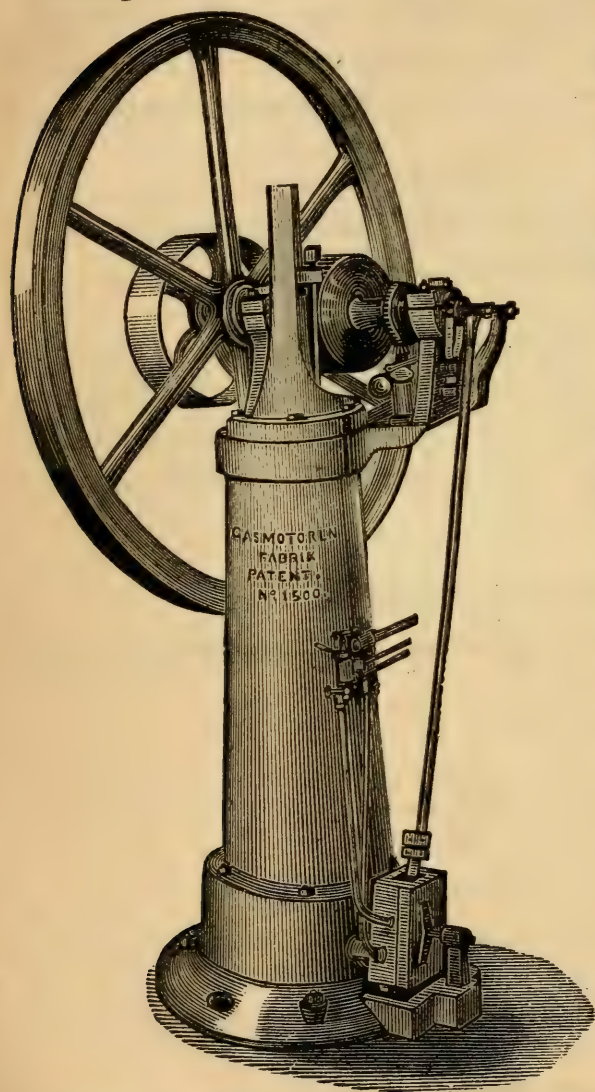
Fat cattle must be weighed ; and, in general, those will be judged best which have the greatest weight, with the least surface and offal.

Awards will be made for:

Best fatted steer of any age or breed.

Best fatted cow of any age or breed.

Most powerful yoke of oxen.



LANGEN OTTO GAS MOTOR, EXHIBITED IN THE
GERMAN SECTION OF MACHINERY HALL.

Most rapidly-walking yoke of oxen.

Most thoroughly-trained yoke of oxen.

Most thoroughly-trained team of three or more yokes of oxen.

Breeding Sheep.

All sheep offered for exhibition must be accompanied with a certificate to the effect that they have been shorn since the first of April, and the date given.

If not fairly shorn, or if clipped so as to conceal defects, or with a view to improve the form or appearance, they will be excluded from competition.

Awards will be made to *respective* breeds for :

The best pen of five animals of same flock, and including one ram ; the ewes all having had living lambs the past spring.

Awards will be made to *respective* breeds for :

Rams, two years and over.

Shearling rams.

A sweepstake award will be made for the best ram, respectively, of long, middle, and fine-wooled breeds.

Awards will be made to *respective* breeds for :

Ewes, in pens of three, all having had living lambs.

Shearlings, in pens of three.

A sweepstake award will be made for the best pen of three breeding ewes, respectively, of long, middle, and fine-wooled breeds.

Fat Sheep.

Fat sheep entered for competition must be weighed ; and, in general, those will be judged best which have the greatest weight, with the least surface and offal.

Awards will be made for :

Pen of three best fatted sheep of each breed.

Pen of three best fatted sheep of any breed.

Breeding Swine.

Every competing sow above one year old must have had a litter or be in pig, and the owner must bring proof of these facts, if required.

If a litter of pigs be sent with a sow, the young pigs must be sucklings—the offspring of the sow, and must not exceed the age of three months.

Awards will be made to *respective* breeds for :

The best pen of one boar and two breeding sows.

For pen of sow and litter.

Awards will be made to *respective* breeds for :

Boars, two years old and over.

Boars, one year old and under two years.

Boars, between nine months and one year.

Breeding sows, two years old and over.

Breeding sows, one year old and under two years.

Pen of three sow pigs between nine months and one year.

A sweepstake award will be made for the best boar of any breed.

A sweepstake award will be made for the best sow of any breed.

Fat Swine.

Fat swine entered for competition must be weighed ; and, in general, those will be judged best which have the greatest weight, with the least surface and offal.

Awards will be made for :

Pairs of best fatted hogs of each breed.

Pairs of best fatted hogs of any breed.

Dogs.

Benches will be furnished free of charge. Exhibitors may themselves assume the costs of attendance upon their animals ; but, to provide for them who cannot conveniently attend the Exhibition, the Commission will assume the expenses of feeding and daily care free of charge.

Awards will be made to *respective* breeds for :

Dogs of two years and over.

Dogs of one year and under two.

Pups.

A sweepstake award will be made for the best dog of any breed displayed by a foreign exhibitor.

A sweepstake award will be made for the best homebred dog of any breed.

Awards will be made to *respective* breeds for :

Bitches of two years and over.

Bitches of one year and under two.

Bitch pups.

A sweepstake award will be made for the best bitch of any breed displayed by a foreign exhibitor.

A sweepstake award will be made for the best homebred bitch of any breed.

Poultry.

Poultry can only be exhibited in coops made after specifications furnished by the Bureau of Agriculture.

The Commission will furnish coops and attendance free of charge.

Awards will be made to *respective* breeds for :

Pairs of one year and over of chickens, turkeys, ducks, geese, swans, pigeons, guineas, and ornamental birds.

For pairs under one year.

Fish.

Living fishes will be displayed in both fresh and salt-water aquaria.

Awards will be made for :

Largest display of fish of each species.

Largest display of fish of all species.

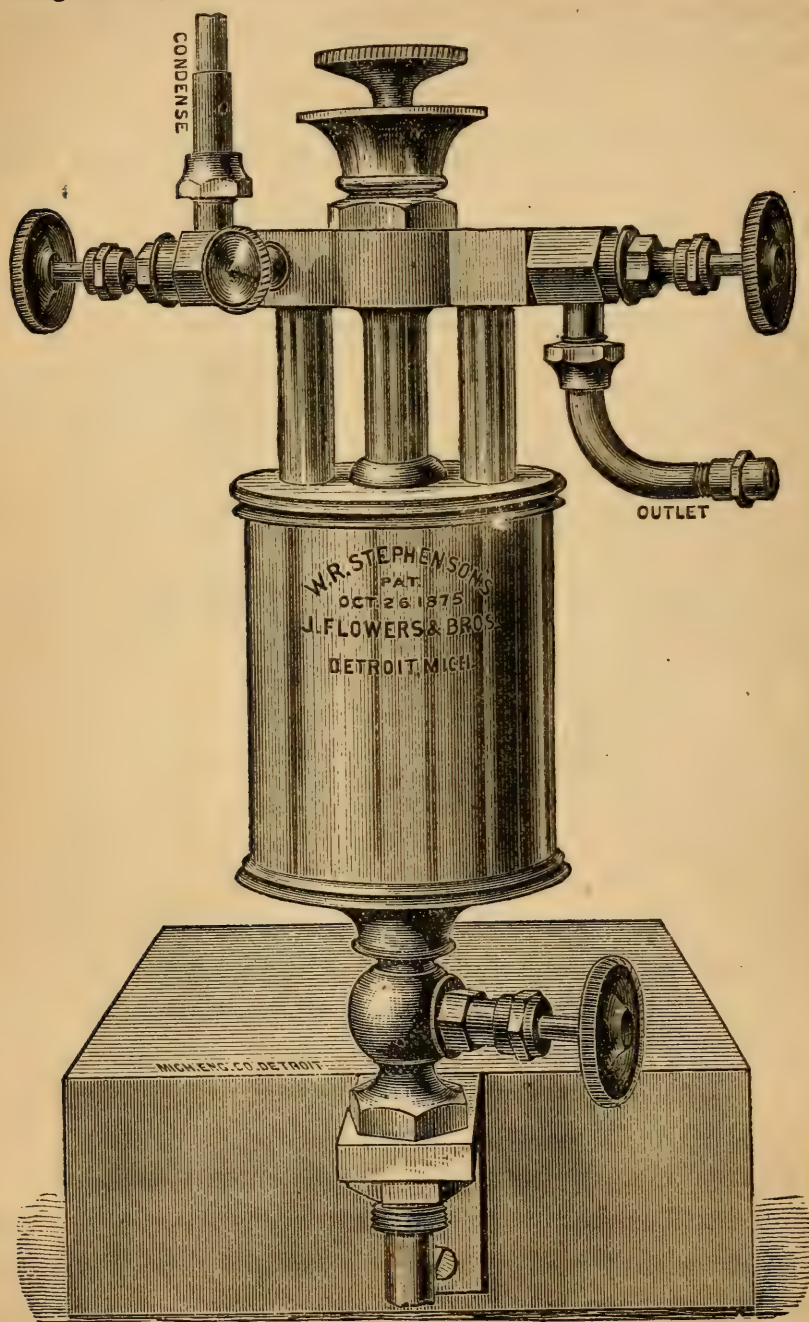
A. T. GOSHORN,
Director-General.

BURNET LANDRETH,
Chief of Bureau of Agriculture.

Philadelphia, *March 22d*, 1876.

The grounds assigned to the live-stock displays were situated about five hundred yards south of the main Exhibition enclosure. They comprised twenty acres in the form of a trapezium with the wider end in front, bounded on the north by the Pennsylvania Railroad, on the south by Westminster avenue, on the east by Forty-first street, and on the west by Belmont avenue. They were surrounded by a high wooden fence, containing three groups of entrances similar to those at the main Exhibition enclosure. Two of these groups were on Belmont avenue, and the other at the corner of Westminster avenue and Forty-first street. The buildings and improvements cost over \$25,000. There were 826 stalls for cattle and 540 stalls for dogs. All these were comprised in twenty-nine frame buildings, each 170 by 14 feet in size, and having a roof projecting four feet on each side and end. Eighteen of these sheds were on the northern border of the grounds, perpendicular to the fence, and the eleven others on the southern border, in the same position with respect to the fence. The offices of the superintendent and the judges were in a frame building fronting on Belmont avenue, and two stands for the judges were erected in the centre of the large area between the sheds. This area was

left open for the purpose of exercising the animals and of exhibiting their performances to the judges and the spectators.

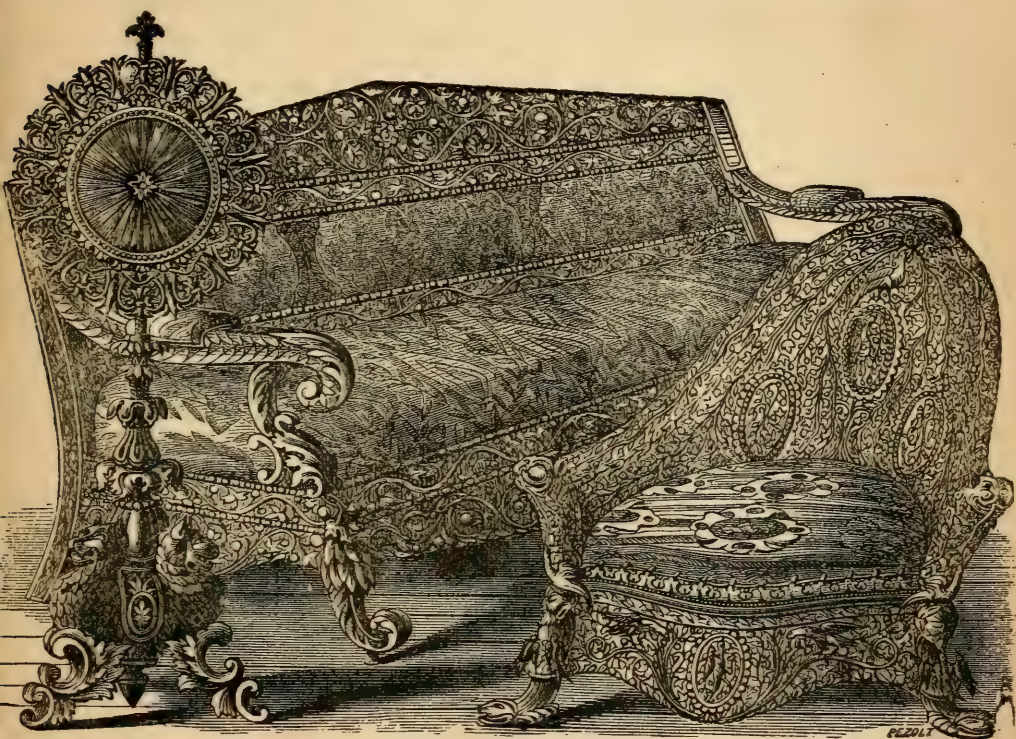


FLOWERS' CENTENNIAL OIL-CUP, EXHIBITED IN MACHINERY HALL.

The Horse Show. The exhibition of horses, mules, and asses was opened in accordance with the official programme on the

1st of September, but was not fairly in operation until several days later. It was in many respects a surprise to the visitors, being on the whole much better than was anticipated.

The palm was worthily borne off by the Canadian exhibitors, whose stalls were located immediately on the left of the entrance, their display being the best arranged and to the farmer the most valuable and instructive on the grounds. The animals here exhibited consisted mainly of Clydesdale and English



CARVED EAST INDIAN FURNITURE, IN THE MAIN BUILDING.

draught horses, which are a specialty of Canadian stock-raising. There are two branches, if we may so express it, of the Clydesdale breed. One of these is known as the English Clyde, the other as the Scotch. Both branches are originally from Scotland, but the English breeders have made certain modifications in the horse. Both branches were well represented at the Exhibition. All the animals exhibited there in the imported class were of the very best specimens of the breed, and it is rather a difficult matter to select particular horses for special mention.

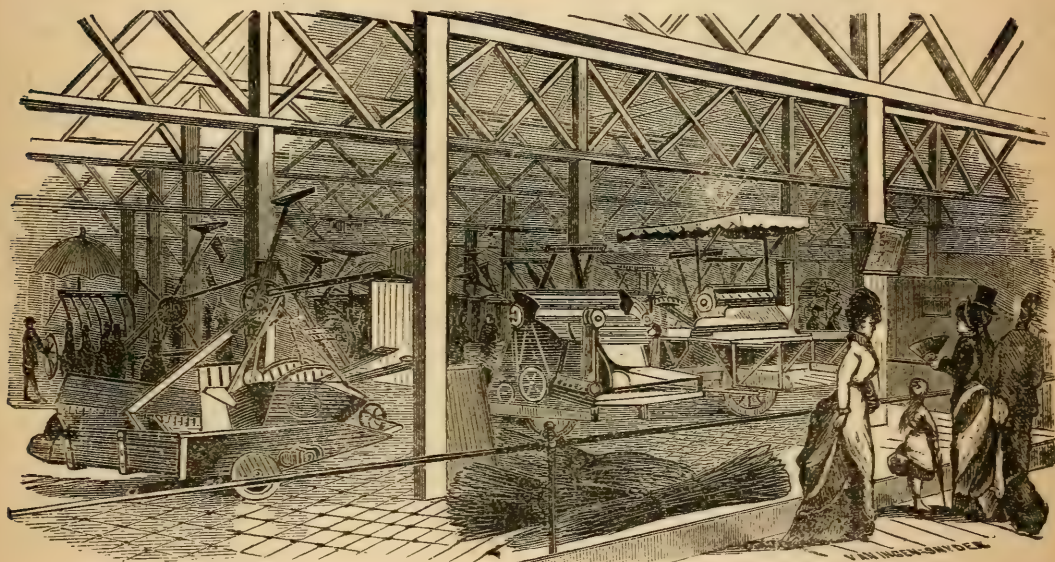
The chief praise, among the Clydesdales, however, was given to Royal Tom, an English-bred horse, four years old, and weighing 2133 pounds. He was a rich mahogany bay, and so evenly and symmetrically built that while standing in his stall his immense size was scarcely noticeable. When brought out with other horses in the ring, however, the young giant at once showed his magnificent proportions in their true light. He was a very compact, closely coupled and ribbed horse, with broad, flat legs, exceptionally clean for a horse of his great size. He wore upon his collar twelve medals, won by him at fairs in England, and has never yet been beaten at such an exhibition.

A very fine specimen of the Scotch-bred Clyde was seen in "Scotsman," a light bay four years old, and weighing 2000 pounds. He was not so compactly built as Royal Tom, and was not so fine in the characteristic points of the breed, but was still a magnificent young draught stallion. In the same row of stables were two very fine specimens of the Lincolnshire, or English draught horse. One of these was "Simon Pure," a beautiful blood bay, of excellent style, but somewhat more leggy and lighter limbed than the Clydesdale, but rangy and possibly more active. The other was "Lord Dufferin," a remarkably smooth two-year old. He is of a rich brown color, very compactly built, and entirely free from blemish; an exceedingly promising young horse, a little smaller than some specimens of the breed, but making up in quality what he lacks in size.

In the next range of sheds were shown the practical results of the infusion of this draught blood in the exhibit of cross-bred stallions and mares—an exhibit of the greatest value to breeders and farmers. Here were to be seen horses of great size, but of more active and graceful build than their somewhat clumsy sires. One of the handsomest draught stallions on the ground was Lord Logan, one of those cross-bred or grade stallions, three years old, of a rich blood bay, smooth limbs, devoid of the exaggerated hairy fetlock which marks the pure Clydesdale, and more rangy and free in action, with a weight of 2000 pounds. Especially noteworthy among these grades were three

mares exhibited by George Doidge, of Columbus, Ontario. They were fillies of extraordinary size and attracted especial attention from those interested in the breeding of horses.

In the next row of sheds were displayed stallions of the breed especially raised for coach purposes, called by various names, and produced by no very exact course of breeding. The most noted of these were exhibited by Mr. Long, of Lansing, Ontario, and were styled by him Cleveland Boys. One of these was "Lord Zetland," bred by the nobleman of that name, of the celebrated thoroughbred Voltigeur by a grade mare; the other was "Emperor," bred by the late Emperor Napoleon III.

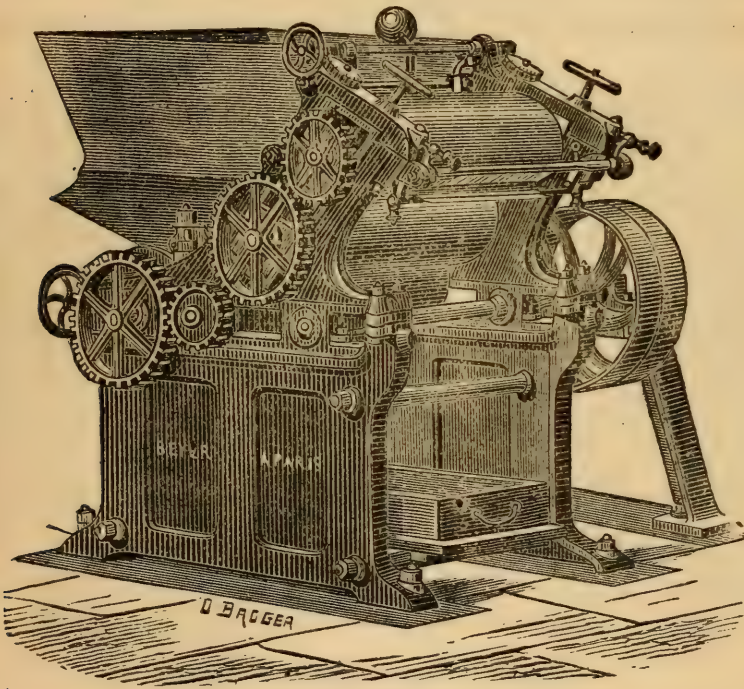


MACHINERY SECTION, AGRICULTURAL HALL.

out of the thoroughbred "Esculape." These horses are of large size, with blooded heads, clean and sinewy limbs, and well adapted for carriage service, being stylish and of excellent action, but not very fast. They will scarcely supersede the trotting stallion with Americans as breeders of carriage horses. The Canadians exhibited very few thoroughbreds or trotters, and only two Percheron stallions, which, though fair animals, were not as handsome specimens as could be found in the United States exhibit.

Passing the Canadian exhibit, we come next to the exhibit

of horses from the United States. First of all we noticed a row of sheds devoted mainly to the display of the Chestnut Grove Stock Farm, of Easton, Pennsylvania, which exhibited horses of all kinds. We noted the very handsome imported four-year-old draught stallion Oxford, a Clydesdale of pure type ; Highland Golddust, a beautiful chestnut sorrel stallion, a splendid specimen of the well-known Golddust trotting stock, and several other stallions and geldings of approved trotting and draught strains. Crossing to the other side of the grounds



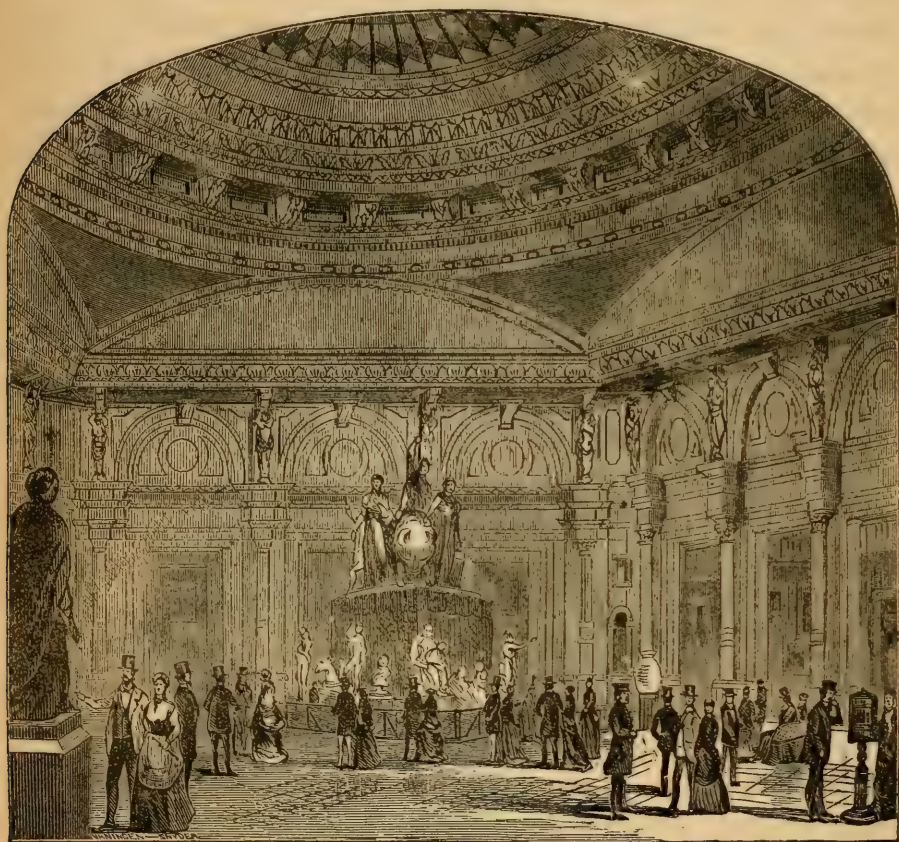
FOUR-CYLINDER SOAP-MAKING MACHINE EXHIBITED IN THE FRENCH SECTION, MACHINERY HALL.

we came to the stables devoted to the thoroughbred and trotting stock exhibited by our own breeders. In the first stall we find, in strong contrast with the draught stallions described on the Canadian side, the beautiful but small Jenifer Arabian, a very light gray, almost white, and a strong exponent of the points of that poetic breed, delicate in all his proportions, but perfection in form. We noticed, in passing, the very handsome stallion Andes, out of Bonnie Scotland, and the beautiful

blood-brown stallion Bingaman, out of Asteroid, active as a deer and playful as a kitten, with beautiful limbs, and grand muscles playing with easy grace under his sleek and supple skin. Governor Hartranft, of Pennsylvania, exhibited four fine stallions, which were among the most notable on the grounds. Two of them were aged horses—one, Tom Allen, out of the celebrated Ethan Allen, a strong-limbed, serviceable trotter, well up in the points of the Allen stock; the other, Montgomery, out of Alexander's Abdallah, the very aristocracy of trotting pedigrees, and a very good example of the strain. The others were promising colts. Among the trotting stallions particular curiosity was excited by Graphic No. 36, a two-year old colt, out of the stallion Smuggler, whose wonderful performances, during the past summer, have made him the sensation of the hour. Graphic is a rangy, heavy-limbed colt, and looks as if he would be a goer. The best-known trotting stallion on exhibition was Thomas Jefferson, a noble black horse of wonderful beauty, whose long tail actually trails upon the ground, and whose performances, under the skilful reins of Budd Doble, are matters of turf history. The next most notable horse was Mr. F. G. Wolbert's stallion, Bismarck, out of Hambletonian. Bismarck is sixteen and a quarter hands high, of a rich bay color, closely coupled with broad, flat legs of enormous range, and muscles of exceptional size. He has no record, but could doubtless establish one low down in the twenties. There were a number of other exceedingly fine horses, but none of national reputation.

After the trotters and runners came the United States display of draught horses. Prominent among these was the exhibit of James A. Perry, of Wilmington, Illinois, which consisted of imported Percheron horses. At the head of his stud was the Duke de Chartres, probably the finest Percheron stallion ever imported, light dapple-gray in color, sixteen and a half hands high, weight 2050 pounds, limbs and muscles of enormous size, but perfect symmetry, and, despite his immense size, active as a mustang. Mr. Perry also showed Rolland, a horse of great size and power, and especially noteworthy as to color, being a rich dapple-brown, which is somewhat rare in this breed, which

runs mostly to grays. J. J. Parker, of West Chester, Pennsylvania, made an excellent display of Percherons of the smaller, and, as some hold, the purer type, horses ranging from 1200 to 1500 pounds. He exhibited two colts which were very interesting to breeders. They were the offspring of the delicate thoroughbred Jenifer Arabian and the somewhat coarse but pure-bred Percheron mares. These colts were too young to



INTERIOR OF ROTUNDA OF MEMORIAL HALL.

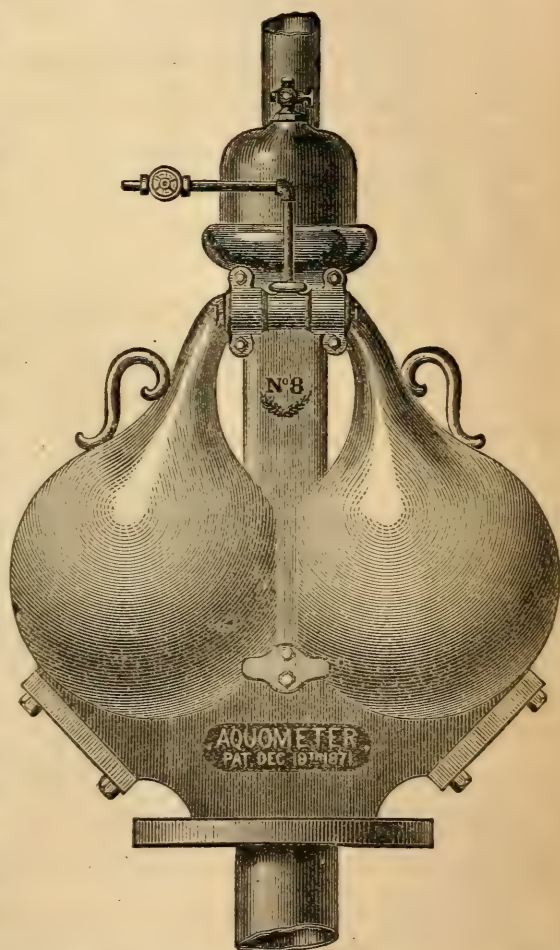
judge of the result as yet, but Mr. Parker deserves the thanks of breeders for making the experiment. Mr. George Murray, of Racine, Wisconsin, exhibited the largest Clydesdale on the grounds—Donald Dinnie, a horse of enormous size, but of fine quality as well. Our local breeders were well represented. William Meikle, of Indiana, Pennsylvania, exhibited three Clydesdales of recent importation; Charles S. Taylor, of Bur-

lington, New Jersey, exhibited the Clydesdale stallion, Samson, a very handsome brown four-year-old; and also an exceedingly fine Clydesdale mare, Mayfield. The smallest animal on the grounds was the Arabian Jack, exhibited by Louis Lienau, a little creature not much larger than a Newfoundland dog, but exceedingly attractive in its quaint ugliness.

At ten o'clock in the morning and again at four o'clock in the afternoon, during each day of the horse show, the animals were led out in the ring, and were there, either in harness, or under the charge of attendants, put through the performances best calculated to show their speed and display their most attractive and valuable qualities. The sight at such times was beautiful and inspiring, and drew large numbers of persons to witness it. Prominent among the animals exhibited in the ring was a team of beautiful dapple-gray horses, the property of Mr. A. R. Murdoch. Their aggregate weight was 3500 pounds.

Especial admiration was excited by two milk-white mares, twin-sisters, granddaughters of Dan Rice's old horse Excelsior.

The number of entries at the horse show was 246, of which 170 were American. The remainder belonged to Canada.



"AQUOMETER" PUMP, EXHIBITED IN MACHINERY HALL.

The following gentlemen were the judges of the horse exhibition :

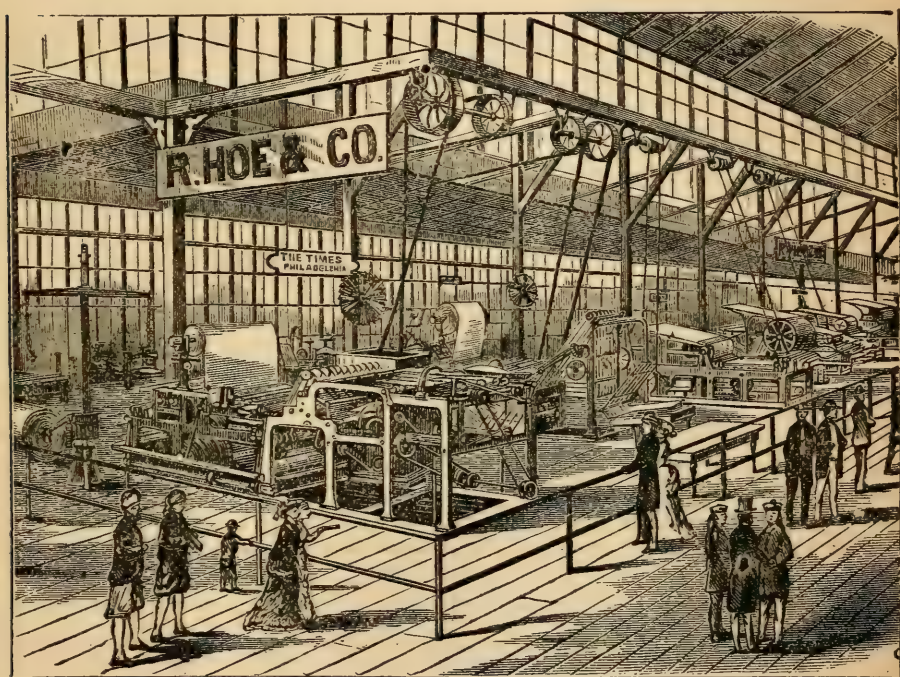
John R. Viley, Lexington, Kentucky ; Dr. J. W. Weldon, New York ; Basil Duke, St. Louis, Missouri ; Colonel E. T. Stowell, Cornwall, Vermont ; George Murray, Racine, Wisconsin ; Thaddeus Holt, Macon, Georgia ; Thomas D. Dewey, Owosso, Michigan ; Milo Smith, Clinton, Iowa ; General T. G. Williams, Austin, Texas ; S. P. Brown, Washington, District of Columbia ; A. McAllister, Springfield Furnace, Pennsylvania ; S. H. Tewksbury, Portland, Maine ; John Miller, Columbus, Ohio ; F. Parrington, England, and Dr. Tetu, Quebec.

The horse show was well patronized, the attendance and the interest in it increasing each day. - It was formally closed on the 14th of September.

The Dog Show.—The dog show was opened, according to arrangement, on the morning of the 4th of September, and was closed on the evening of the 8th. It was a perfect success, and was pronounced, by competent judges, the most complete and satisfactory exhibition of its kind ever held. The entries numbered 722, of which 681 were American, twenty-six English and Irish, and fifteen Canadian dogs. The collection embraced sporting and fancy dogs, imported and domestic English and Irish Jordan setters, and pointers of fifty pounds weight over and under. Harriers, beagles, Chesapeake Bay dogs, Irish water spaniels, and a large variety of hounds and terriers of all sizes and colors made up the list, with a liberal display of Newfoundland, St. Bernard's, mastiffs, bull-dogs, poodles, etc. The different breeds were classified according to sections, and by reference to the catalogue the visitor was enabled to familiarize himself with the distinguishing characteristics of the breeds. With the list of entries was incorporated a description of typical characteristics, and a scale of points such as is made use of in judging dogs in England.

"Long before the visitor reaches the show," wrote the correspondent of the New York *Tribune*, "he is greeted with such a medley of dog voices as he has assuredly never heard before. From the deep bay of the fox hound to the sharp yelp of the

terrier, from the full tone of the English mastiff to the uncertain squeak of the poodle, there are numberless gradations, with variations for each mood of the dog mind. Setters are more largely represented than any other variety of the dog race, and there are many fine, highly-bred animals here. There are some excellent red Irish setters here, including a few that are valued at two hundred guineas apiece, and some black-and-tan Gordon setters so finely marked that they would form fine subjects for the animal painter. Many English setters are exhibited,



DEPARTMENT OF PRINTING MACHINERY IN MACHINERY HALL.

and some of them not only show the points of good dogs, but have pedigrees of remarkable extent. Most noticeable among the latter are two dogs recently imported from England, late the property of Edward Laverack, of Shropshire. They are descended from stock which Mr. Laverack obtained in 1825, and which, it was supposed, had been pure for thirty-five years. He has kept a continuous strain of pure blood since that time. The pedigree of the two dogs for nine generations is shown, and the number of names in it is adapted to give a person an

enlarged idea of the dimensions of the graveyard which might contain the bones of his ancestors. There are comparatively few pointers, but some are good animals. Some Irish terriers are shown of a very high strain of blood, as may be judged from the price, two hundred guineas in gold, asked for one or two of the best. Very curious in appearance are the Irish water spaniels, with long curly top knots and shaggy ears. There are quite a number of Duchshunds, a medium-sized dog, with singular crooked forelegs. Among the other canines are English fox-terriers, used to unearth the fox when the hounds have run him into his burrow; many Skye terriers, Scotch terriers, black-and-tan terriers, poodles, and lap dogs, Spitz dogs, Siberian bloodhounds, a fine English mastiff, English and Italian greyhounds, Chesapeake Bay duck dogs, vicious-looking bull terriers, English pug dogs, sheep dogs, and two queer hairless Mexican hounds."

The attendance upon the dog show was large, many of the visitors being ladies. The judges and their specialties were as follows: John E. Long, Detroit, Michigan, pointers and spaniels; Col. T. G. Skinner, New York, hounds; Dr. L. H. Twaddell, Philadelphia, non-sporting dogs; John Swain, Baltimore, Maryland, English setters; George Drolet, Montreal, Canada, Irish and Gordon setters. Among the more prominent awards were the following:

The *Forest and Stream* prize to Aileen, owned by Frank Roan; prize for Duchshunds to Dr. L. H. Twaddell's Unser Fritz; *Turf, Field, and Farm* prize for fox hounds to J. Shaner's Dandy and Chip; C. L. Westcott's prize to J. E. Long's Juno; John Krider's prize to J. Ayre's Glen; Captain A. H. Clay's prize to Bess; the Chicago *Field's* prize to Rufus 2d. The Philadelphia cup for the best setter in the show was awarded to Paris, owned by L. H. Smith, of Strathroy, Ontario, Canada. The cup for the best imported English setter, over one and under two years, was awarded to L. H. Smith's Llewellyn. The Detroit Gun Club cup was awarded to Juno, owned by J. E. Long, of Detroit. The Philadelphia sportsman's cup for pointers was awarded to G. A. Strong's Pete.

The Cattle Show.

The display of horned cattle began on the 21st of September, and lasted until the 4th of October. Though the entries were light at first they increased daily, until they finally numbered 550 head of cattle, so that the exhibition may be fairly considered a success. It attracted many visitors, especially those interested in the raising of cattle.

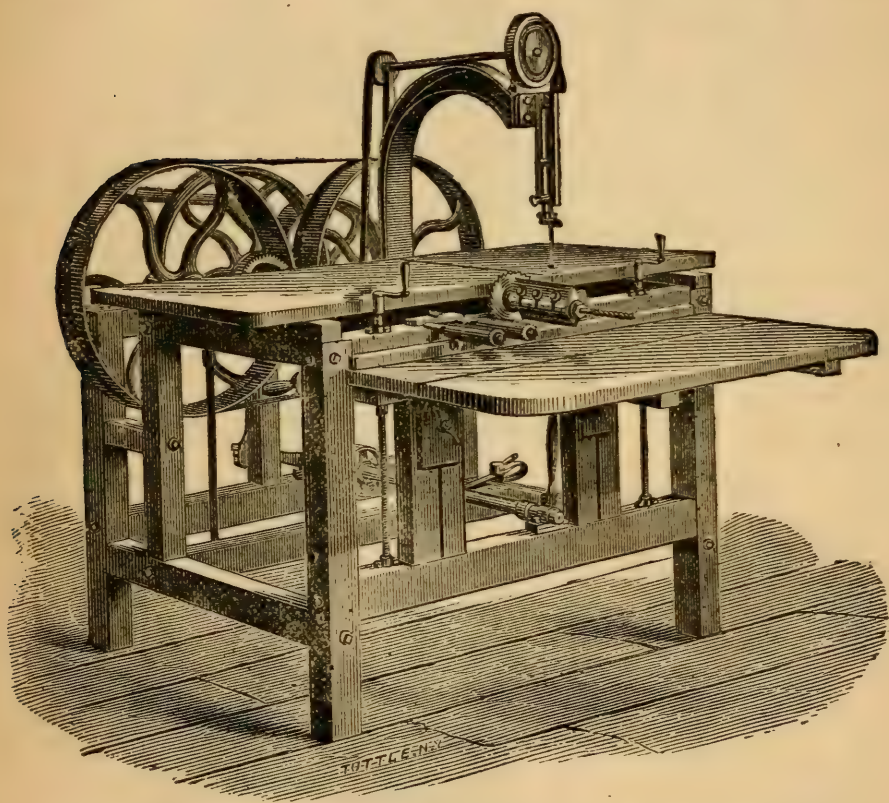
Among the animals on exhibition were four large buffaloes from Colorado, which were especially noticed by reason of their immense size. The largest animal displayed was the General Grant, whose weight was almost five thousand pounds. There were also shown two steers, one from Kentucky, the other from Canada, whose weight was almost equal to that of the General. Two rows of sheds were set apart for draught cattle, of which a fine display was made. All the oxen on exhibition were thor-



BECKER'S "RIZPAH PROTECTING THE BODIES OF HER SONS," IN MEMORIAL HALL.

oughly trained to the voice of the driver, and the greater part of them belonged to the finest breeds of this country. Among the entries were 150 Jersey milch cows from various parts of the United States, and 12 from England; about 70 Shorthorns from Canada and Pennsylvania, principally for beef; 50 Ayrshires, for dairy purposes; a large number of Devons, intended for both the dairy and the meat market; and a number of fine specimens

of Hereford, Galloway, Kerry, Holstein, and Dutch breeds, most of which were bred for the market. The display of fat cattle for beef was also fine, although the entries from each State were small. A number of the more valuable Shorthorns were imported from England by a well-known Kentucky cattle-raiser. They were valued at from \$4,000 to \$9,000 apiece, and one of them, a gigantic bull, was valued at \$10,000.



COMBINATION WOOD WORKER, EXHIBITED IN MACHINERY HALL.

On the 4th of October a number of the Shorthorn or Jersey cattle were sold at auction, the cattle show being over. The prices were fair, the sale opening with the disposal of the heifer Cassandra for \$180, and the roan bull Lord Cranham for \$100.

The Display of Sheep, Swine, and Goats

Began on the 10th of October, and lasted until the 18th. The entries were as follows: sheep, 400; swine, 375. The Ameri-

can animals were exhibited by prominent breeders in New York, Pennsylvania, Connecticut, Maryland, New Jersey, Wisconsin, Iowa, Illinois, Massachusetts, and Virginia. Canada sent a considerable number of sheep of the breeds of Cotswolds, Leicester, Southdowns, and Oxford-downs, and some fine swine of the Suffolk, Yorkshire, Berkshire, Essex, and Chester white breeds. Among the Southdowns were some of the most valuable specimens of sheep in existence, some of which were valued as high as \$6000 apiece. One of the largest was a breeding ram weighing four hundred pounds, whose hire for a single season is about \$250 gold. Mr. Russell Swanwick, of England, exhibited some noticeable Cotswold sheep, the average weight of which reached the rare figure of three hundred pounds, a weight not often attained by this breed.

Among the swine herds Mr. T. S. Cooper, of Pennsylvania, exhibited the finest animals. These were imported Berkshires, all of which are said to have carried off premiums at various European exhibitions. The heaviest hog in the display was exhibited by Messrs. Shaner, Ashbridge & Walter, of Chester county, Pennsylvania, who exhibited some splendid Chester whites.

The Poultry Show.—The exhibition of poultry was held in the Pomological Annex to the Agricultural Building, and was opened on the 27th of October and closed on the 6th of November. The large hall was specially fitted up for the occasion with long rows of coops. Above these were placed a number of cages containing Canaries. The entries of chickens and birds amounted to more than six thousand, but the fowls present fell short of this number. The finest displays were from Pennsylvania, New York, New Jersey, Massachusetts, Connecticut, Rhode Island and Michigan. A considerable number of fine fowls from Canada and England were also on exhibition. The majority of the States of the Union were well represented, and the visitor was afforded a fair idea of the excellence and variety of the fowls raised in this country.

The exhibition was under the charge of J. E. Diehl, Esq., the Vice-President of the Pennsylvania Poultry Association, who acted as Superintendent.

Of the fowls and birds on exhibition our limits will allow us to speak but briefly. The Light Brahmas attracted particular attention. They were large, beautiful chickens, with all the perfect marks of that breed. Immediately to the south of the coops containing them were a number of coops of fine Bantams. Of the large Cochin Chinas there were several varieties. Some of them were pure white, others pure black, and others again of the buff varieties. Dr. H. H. Lowrie, of Plainfield, New Jersey, exhibited three handsome white Leghorns. Mr. McLaren, of Meadville, Pennsylvania, sent some silver duck-winged Game chickens; whilst Benson & Burpee displayed

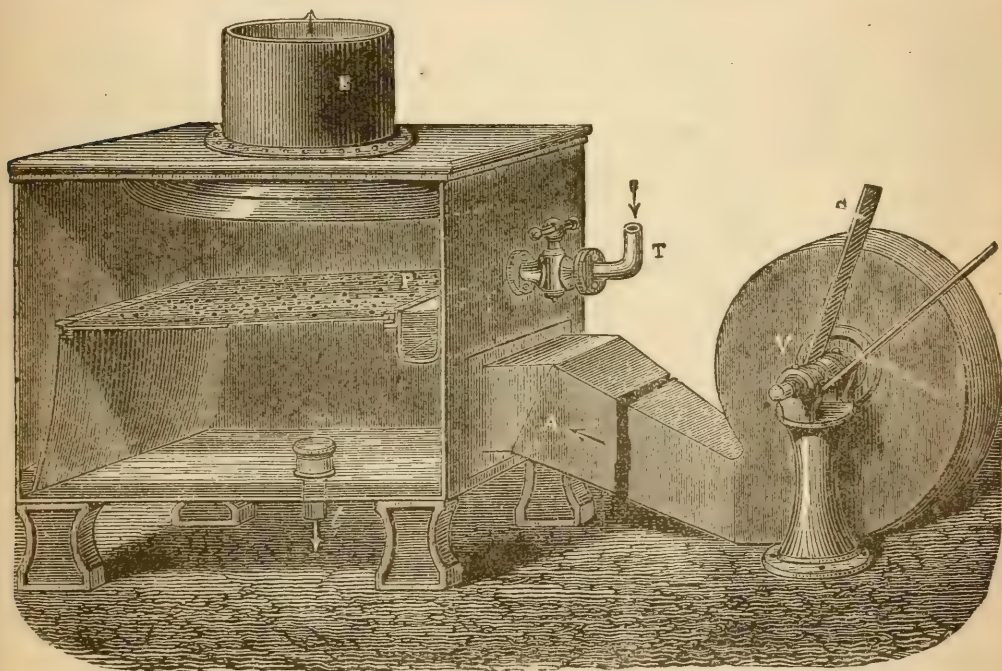


EASTMAN JOHNSON'S "OLD KENTUCKY HOME," IN MEMORIAL HALL.

sixty cases of fine fowls, among which were pure white and black Leghorns, black Spanish chickens, and black Hamburgs with red combs and white wattles. There were also some beautiful silver and gold-spangled Hamburgs, and golden-pencilled and silver-pencilled Hamburgs. G. H. Warren, of New York Mills, and G. F. Seavey, of Massachusetts, exhibited some beautiful golden and silver Sebright fowls—very beautiful bantams, spotted all over the body, wings, tail and neck. Probably the most attractive exhibit to the ordinary visitor, as well as to the poultry fancier, consisted of a number of pairs of silver Pheasants from Pennsylvania and Connecticut. These were of a very rare breed, and were, without doubt, the most beautiful fowls in the Exhibition.

Turkeys were well represented, a number of varieties of domestic and wild fowls being shown. The black, light and dark bronze and white, and the wild turkey had each its well-selected representative.

Among the ducks we may notice the Raven duck, large, dark-colored and beautifully marked; the Cayuga duck, pure black, even to the bills, legs and feet; and the Aylsbury or the Centiary, pure white, and equal in size to the Cayuga. W. A. Burpee exhibited a curious duck, hatched in the spring of 1876, and

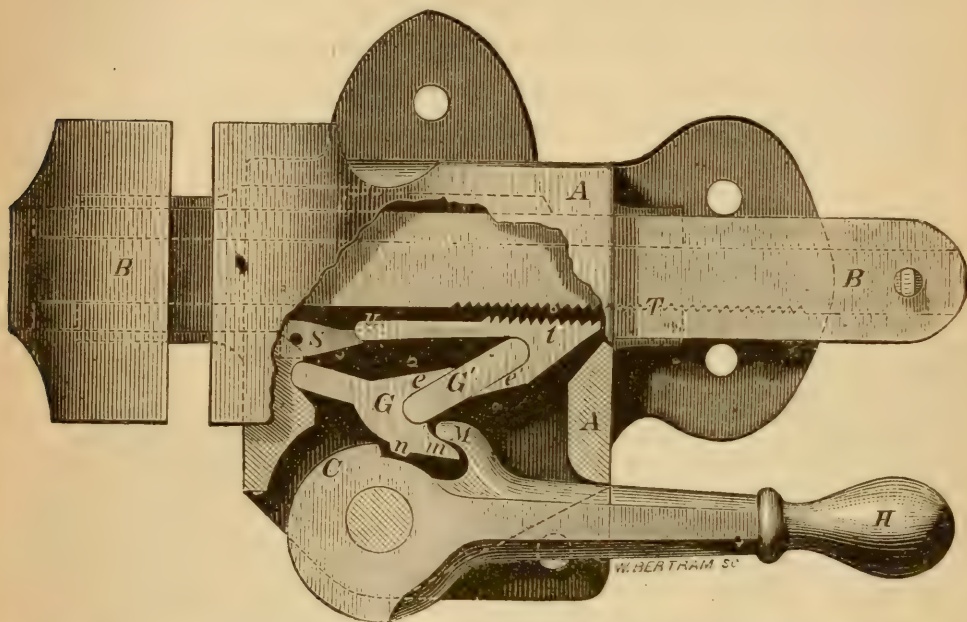


GARLAND'S AIR-COOLER AND PURIFYING APPARATUS, EXHIBITED IN MACHINERY HALL.

perfect in every way except that its feet instead of being webbed were perfect chicken's feet. This duck could swim as well as any other, notwithstanding this defect.

There were two Egyptian geese on exhibition. They were very handsome and attracted much attention. The breast is of black, white and gray, spotted like canvas; the back of a reddish-brown, black and gray mixed; and there is a reddish-brown ring around the throat, with the same tinge in different shades on the neck and head. There were also several varieties of the Toulouse, China, Bremen, Hong-Kong and Wild goose.

The display of pigeons was very extensive and very fine, comprising some of the best and rarest breeds, besides such favorites as Tumblers, Jacobins, Fan-tailed and Crested birds, Cameras, Turbets, Antwerps, and numerous others. One display of a breed which has been increased in size, until the birds



THE STEVENS PARALLEL VISE, EXHIBITED IN MACHINERY HALL.

are almost as large as common chickens, attracted exceptional attention.

There were also exhibited a number of swallows, African, Chinese and English owls, Magpies, Starlings and Canary birds.

A fine display was made of patent incubators, and other apparatus for the better care and raising of chickens.

CHAPTER XXIV.

THE STATE DAYS.

Arrangements for the State Celebrations—New Jersey Day—An Inspiring Spectacle—Connecticut Day—Massachusetts Day—New York Day—A Grand Ovation to the Governor of the Empire State—Scenes and Incidents in the Grounds—Pennsylvania Day—The Grandest Celebration of All—A Gala Day at the Exhibition—The Governor's Reception—The Fire Works—Rhode Island Day—The Italian Day—Inauguration of the Columbus Monument—New Hampshire Day—Delaware, Maryland, and Virginia Day—The Fire Works—The Delaware Celebration—Reception by the Governor of Maryland—The Virginia Celebration—The Tournament—The Ball—Crowning the Queen of Love and Beauty—Ohio Day—Magnificent Tribute to the Governor of Ohio—The Merchants' Reunion—Vermont Day.

IN order to add to the attractiveness of the Exhibition, and more especially to carry out the design of making it a means of celebrating the Centennial period of our National history, the Executive Committee at an early day determined to inaugurate a series of "State Days," on each of which a special celebration should be held in the Exhibition grounds in honor of the State of the Union to which the day should be assigned. It was decided that the ceremonies on these occasions should consist of an address devoted to a review of the history and progress of the State holding the celebration, a reception by the Governor of such State at the State building in the Exhibition grounds, and such other festivities as should be decided upon by the committee. It was understood that these celebrations would of necessity be confined to the States nearest Philadelphia, as it would be comparatively easy for their people to be present in force on such occasions. The more remote States by reason of their distance would find it impossible to take part in these festivals. Ar-

rangements were promptly entered into between the Centennial Commission and the authorities of the States desiring to engage in these celebrations, and the utmost enthusiasm was displayed by all parties in carrying out the programmes decided upon.

New Jersey Day.

The first State to engage in these special celebrations was New Jersey. Thursday, the 24th of August, was the day selected by the State authorities, and for several weeks previous

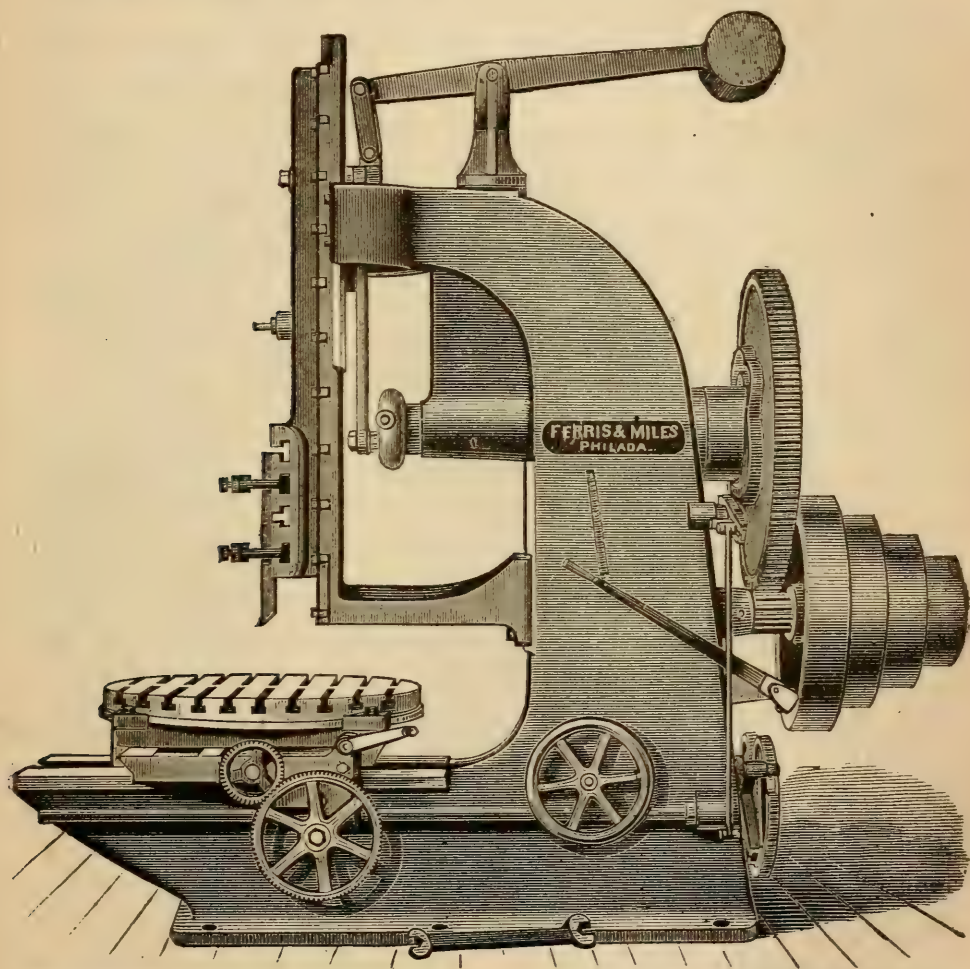


THE ITALIAN DEPARTMENT, AGRICULTURAL HALL.

to that date energetic efforts were made to induce such a number of the people of New Jersey to be present at the Exhibition that the occasion should be an event memorable in the history of the State. New Jersey had done so much to make the Exhibition a success, and had given it such warm and efficient support at its most critical periods, that it was peculiarly appropriate that this generous commonwealth should open the series of State festivals.

Thursday, August 24th, was bright and fair. All through the

morning trains were arriving from points in New Jersey, bringing thousands of visitors, and other thousands came by way of Camden, the Delaware river ferries, and the city car lines. By eleven o'clock the grounds were thronged and the various buildings of the Exhibition were filled with a merry, eager crowd of "Jersey folks," bent on seeing the beauties and wonders of the "Centennial."



SLOTING MACHINE, EXHIBITED BY FERRIS & MILES IN MACHINERY HALL.

At ten o'clock the New Jersey Reception Committee, consisting of native Jerseymen residing in Philadelphia, assembled at the Centennial depot of the Pennsylvania Railroad to act as an escort to Governor Bedle and party, who were to come from Trenton. The Committee was constituted as follows :

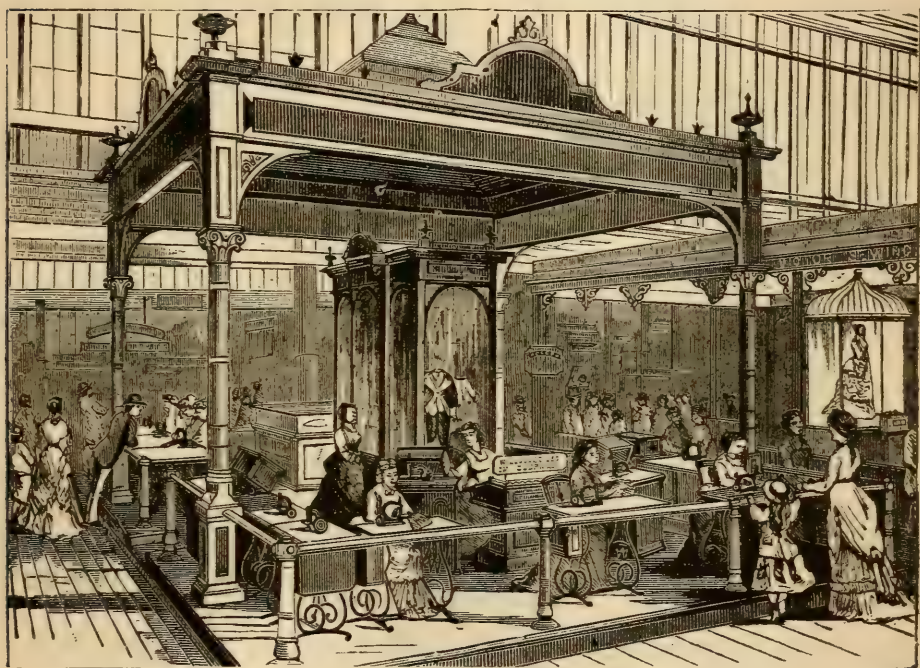
E. C. Knight, Chairman ; Hon. Morton McMichael, Dr. Joseph Pancoast, Hon. B. H. Brewster, Samuel Bispham, Samuel E. Stokes, J. B. Lippincott, Richard J. Dobbins, Furman Sheppard, Edward Browning, James H. Stevenson, John W. Stokes, Louis A. Godey, Dr. E. C. Jayne, and Joseph H. Campion.

The unusual demand upon the transportation facilities of the road threw all the morning trains behind time, and it was not until after eleven that the arrival of the train containing the gubernatorial party was announced by the cheers of the crowd around the depot. As Governor Bedle and his party alighted from the train, they were met by the Reception Committee, the chairman of which greeted them with a brief address of welcome, to which the Governor made an appropriate response.

The company with their escort now formed in line, and proceeding across the street, entered the grounds through the gate adjoining the Board of Finance head-quarters. Here were drawn up in two lines on either side the chiefs of the departments of the Centennial management, with President John Welsh, of the Centennial Board, Thomas Cochran, Clement L. Biddle, Amos R. Little, and other members. Headed by the great First Brigade Band of forty-five pieces, then playing at the Centennial, the procession filed around the Bartholdi fountain and up to the Judges' Hall. The following is a list of the more prominent among the visitors in line, and subsequently in attendance at the Jersey State Building :

Governor Bedle and lady ; Hon. Abram Browning, the orator of the day ; ex-Governors Parker and Newell ; ex-United States Senator Stockton ; Hon. A. L. Runyon, State Comptroller ; Major-General Mott, keeper of the State Prison ; Vice-Chancellor Dodd ; Supreme Court Judges Van Sickle, Reed and Dixon ; Speaker of the State Senate, General Sewell, and State Senators Leon Abbett and lady, John Hill, Dayton, Thorne, Potts, Schultze, Jarrard, Kirk and Hopper ; Speaker of the New Jersey Assembly Carscaller, and Assemblyman Sidney B. Berans ; Hons. Orestes Cleveland and J. G. Stevens, New Jersey Centennial Commissioners-at-large ; aides-de-camps to

the Governor, Colonels Garretson, Hendrickson, Spencer, Hoy, Holcombe and Vredenburg ; Adjutant-General Stryker ; Quartermaster-General Perrine ; Judge John T. Nickerson, United States District Court ; State Treasurer Wright ; Ashbel Welch, Esq., ex-President of United Companies of New Jersey ; Superintendent J. A. Anderson, of Belvidere division ; General N. N. Halstead ; Hon. Alexander Wurtz, ex-State Senator, and Benjamin F. Lee, Clerk of New Jersey Supreme Court. The procession also included the Reception Committee, members of the Centennial management, and many Jerseymen who had previ-



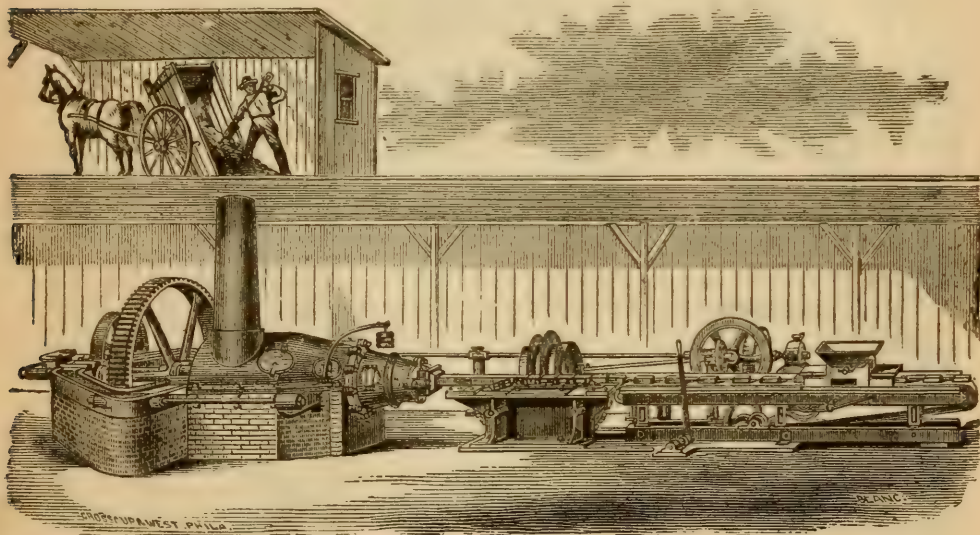
THE SEWING MACHINE SECTION, MACHINERY HALL.

ously arrived on the grounds, General Hawley and President Welsh accompanying Governor Bedle and Mr. Browning respectively.

When the audience had assembled in the Judges' Hall, which, for the first time in its history, was entirely filled, Governor Bedle introduced the orator of the day, the Hon. Abram Browning. Mr. Browning then delivered an eloquent and instructive address, in which he reviewed the history and progress of the State of New Jersey, and explained its agricultural,

industrial and commercial resources. He was listened to with marked attention, and was frequently applauded.

At the conclusion of the address, the company formed in line and marched from Judges' Hall to the splendid New Jersey State Building, on Belmont avenue. This building and the grounds around it were thronged with people awaiting the arrival of the Governor. From every spire of the building above the red tiled roof floated the national colors. The surrounding structures gayly flaunted their bunting, bands of music at the adjoining restaurants gave forth their sweetest strains, and Machinery Hall chimed rang out their peals of

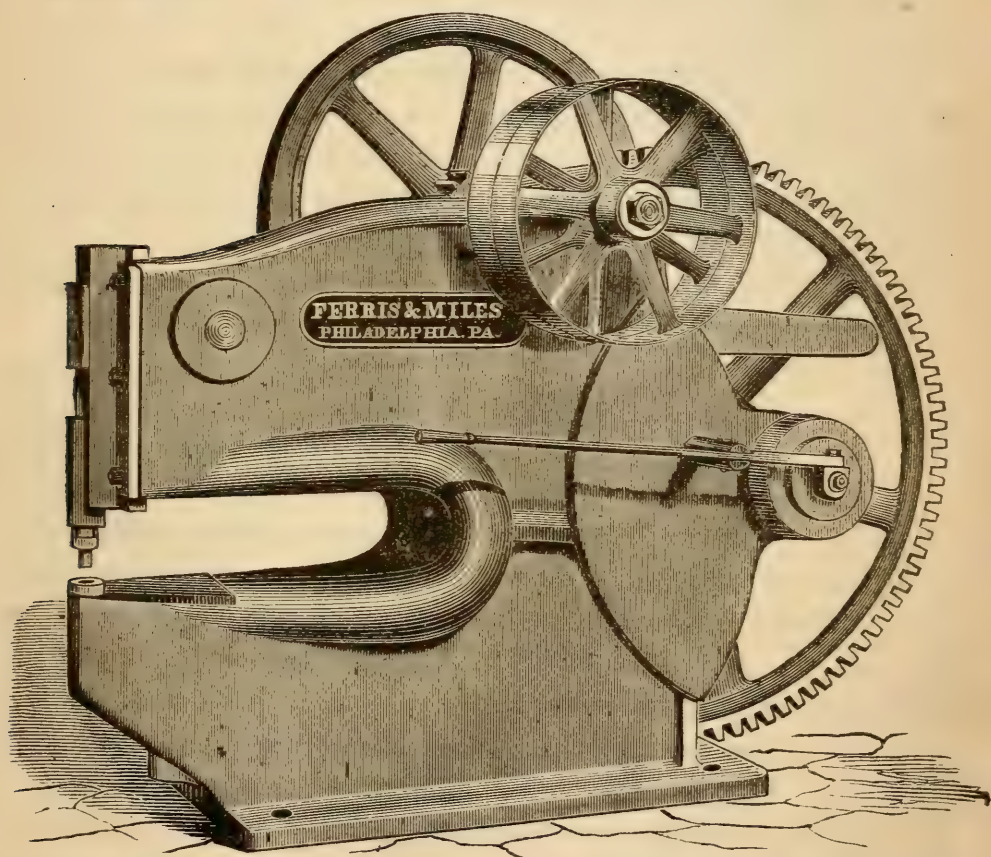


CHAMBERS, BRO. & CO'S ARCHIMEDEAN BRICK MACHINE, EXHIBITED IN MACHINERY HALL.

melody in honor of "Jerseymen's day." Every county in the State, from Sussex to Cape May, and from Hudson to Camden, was represented in the thronging multitude which from nine A. M. till evening tested the strength and capacity of the spacious structure, and surged restlessly through and around it. The procession from Judges' Hall, headed by the First Brigade Band, arrived at the building at fifteen minutes after one o'clock, when many of the State officials were escorted into the private rooms of the State Commissioners. Soon after, Governor Bedle appeared in the main hall of the building, and mounting

a chair addressed the crowd. A formal reception was held by the Governor at the close of his speech, and lasted until three o'clock, the citizens of the State present and many strangers being severally presented to his Excellency. This reception brought the ceremonies to a close.

The attendance during the day was as follows: paying visitors, 56,326; free, 10,727; total, 67,053. The receipts were \$28,063.75.



POWER PUNCHING MACHINE, EXHIBITED BY FERRIS & MILES IN MACHINERY HALL.

Connecticut Day.

The day selected by the authorities of Connecticut for their State celebration at the Exhibition was Thursday, September 7th. Several days previous to this the Third and Fourth regiments of Connecticut volunteers arrived at Philadelphia, and went into camp in Fairmount Park near the Exhibition

grounds. On the 6th, Governor Ingersoll arrived from Hartford.

The 7th of September was an exceedingly disagreeable day. A dull and cheerless rain fell all through the day, and compelled the abandonment of a portion of the ceremonies that had been determined upon. In spite of this, however, the crowd of visitors poured steadily through the gates, and long before twelve o'clock the principal buildings and all the main avenues were thronged.

At one o'clock Governor Ingersoll held an informal reception at the Connecticut State Building on State avenue, which was largely attended. It was estimated that fully ten thousand citizens of Connecticut were present at the Exhibition during the day.

The total attendance was as follows : paying visitors, 64,059 ; free, 10,985 ; receipts, \$30,853.75.

Massachusetts Day.

Thursday, September 14th, was Massachusetts day. The chief interest of the occasion centred about the Massachusetts Building, on State avenue. All the surrounding buildings, American and foreign, displayed their bunting, while from the cupola of the Massachusetts house floated the old Pine Tree flag, an emblem of colonial days, with the national colors from the flagstaff in front, and a pretty collection of many colored ensigns tastefully arranged above the main entrance. The doorways of the interior were decorated with flags. During the afternoon an orchestra, stationed in the hall, furnished the music for the occasion, while from the towers of Machinery Hall the chimes rang out the national airs, and gave a salute on the bells thirteen times, in honor of the day.

At one o'clock Governor Rice, attended by his staff, took his stand in the Governor's room of the building, and held a formal reception, which was largely attended. The people were presented to his Excellency by Commissioner A. L. Coolidge. The visitors entered by the main door and, passing through the hall, repaired to the Governor's room. After paying their re-

spects to his Excellency they passed through the press and reading-room, and made their exit from the building by way of the rear door of the hall, the passage ways being kept open by a detail of the Centennial Guard.

During the reception, the Sons of Massachusetts, an organization of Massachusetts men residing in New York city, and led by Colonel Frank E. Howe, presented a handsome flag to the State through the Governor. The presentation was made in an appropriate address by Mr. Nathan Appleton, of Boston, and was acknowledged in fitting terms by Governor Rice.

After the reception was over, the Governor, his staff, and the members of the executive council dined in the State building.

At night the Governor was serenaded at the Trans-Continental hotel, where he was lodging.

It was estimated that fully ten thousand visitors from Massachusetts were present in the grounds during the day.

The cash admissions to the grounds were 85,795; the free admissions, 12,073; total, 97,868. Receipts, \$41,193.

New York Day.

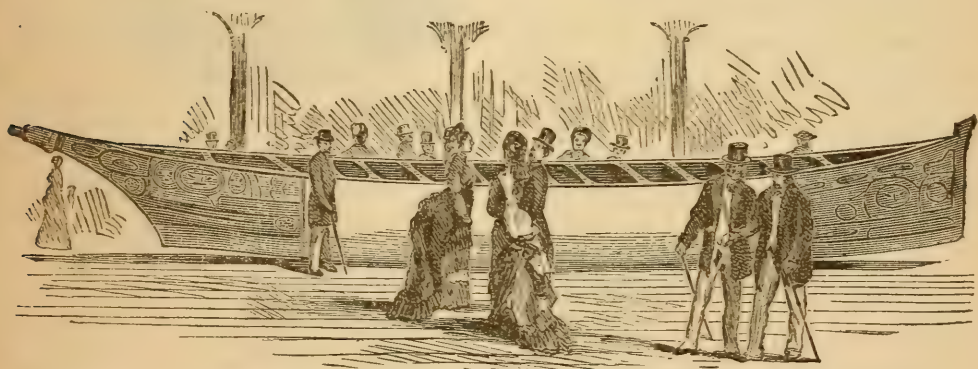
The 21st of September was set for New York day, the fourth of the series of State Centennial celebrations. The day was bright and clear, and at an early hour throngs of visitors began to pour through the gates into the Exhibition grounds. By noon it was evident that the occasion would be memorable as drawing the largest attendance since the opening of the Exhibition, and by one o'clock the crush was tremendous. Thousands came in from New York city and other points in the Empire State during the morning, and each arriving train over the New



DREAMING IOLANTHE, IN BUTTER, IN
THE WOMEN'S PAVILION.

York division of the Pennsylvania Railroad was crowded to its utmost capacity.

At one o'clock Governor Tilden reached the main entrance to the Exhibition grounds in a carriage, and was received by the Centennial authorities and escorted to the New York State building. His arrival was greeted with deafening cheers, and he was followed by a vast multitude eager to do honor to the chief magistrate of the Empire State. The Governor was accompanied by ex-Governor Bigler, of the Centennial Board of Finance, and was followed by about forty members of the United States Centennial Commission, headed by General Hawley, and Commissioner Beckwith, of New York. Governor Tilden acknowledged the hearty greeting of the crowd by repeatedly bowing from his carriage.



"DUG-OUT" FROM BRITISH COLUMBIA, IN THE UNITED STATES GOVERNMENT BUILDING.

Upon reaching the New York building, Governor Tilden at once entered it and took his stand in the principal parlor. The formal reception immediately began. The visitors were presented to the Governor by Mr. Frank Leslie, President of the New York Centennial Commission. As the people received the Governor's recognition, they passed out by a door and stairway in the rear of the building. After the lapse of a considerable time it was found that to receive the increasing mass of people on the outside, who were then being admitted through the front entrance at the rate of twenty per minute, would require the time allotted to the ceremony to be extended several

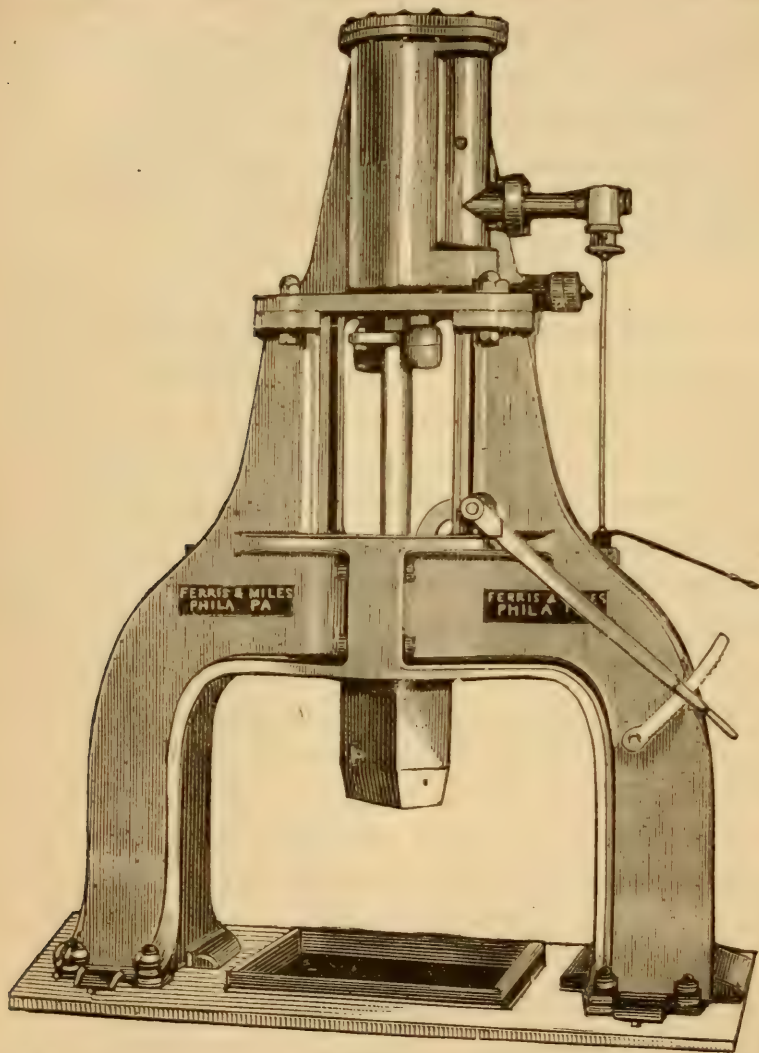
hours. An intimation was also given privately that the floor of the building was not of sufficient strength to stand the unusual weight being put upon it. It was accordingly suggested to Governor Tilden to repair to the portico and address the multitude gathered around the edifice. This suggestion being acquiesced in by the Governor, the formal reception was brought to a close, and the Governor, descending to the portico, was introduced by General Hawley, who said: "Fellow-citizens, you anticipate what I have to say. I have the great honor of presenting to you to-day his Excellency, Governor Tilden, of New York." When the cheers with which he was greeted had subsided, Governor Tilden said:

"LADIES AND GENTLEMEN: My right arm is not wearied with the hearty grasp of the thousands who have seized it with the force of a single shake [A voice: There are 40,000 here who can't get in], but your committee have warned me that the ceremony could not possibly be brought within the time allotted to them, and have therefore instructed me to make my acknowledgments to you *en masse*. Ladies and gentlemen, I tender to you my cordial salutation, one and all. I have come here to-day to perform an official duty, to put the moral power and the official authority of the great State of New York by the side of Pennsylvania, to testify our appreciation and our sympathy. In behalf of five millions of people I thank you for your kind attendance, and I thank you for your expressions of respect, and, tendering to you my cordial and complete salutation, one and all, I bid you adieu."

The ceremonies of the day now came to a close, and Governor Tilden, accompanied by Colonel Frederick A. Conkling and Henry Havemeyer, Esq., of the State Board of Centennial Commissioners, left the New York building for a tour through the grounds. They were followed by a large crowd of people who repeatedly gave loud cheers for Governor Tilden. The party entered Machinery Hall, through which they passed, and then proceeded to the Main Building and Memorial Hall, and

returned to the New York house by way of the Government Building.

A battalion of the New York City Police was drawn up in front of the State building awaiting the Governor's return. As he approached the men came to a present arms. The Governor



STEAM HAMMER, EXHIBITED BY FERRIS & MILES, IN MACHINERY HALL.

passed through the ranks, inspecting the force, and then ascended to the portico. Superintendent Walling, in charge of the force, introduced the Governor to the men, who received him with three cheers. The Governor thereupon addressed them briefly, congratulating them upon their proficiency in drill

and discipline, after which the patrolmen passed in review before him. Shortly after this the Governor entered his carriage and left the grounds.

It was estimated that forty thousand persons from the State of New York were present during the day.

The total attendance was as follows: Cash admissions, 122,003; free admissions, 12,585; total, 134,588. The receipts were \$59,986.

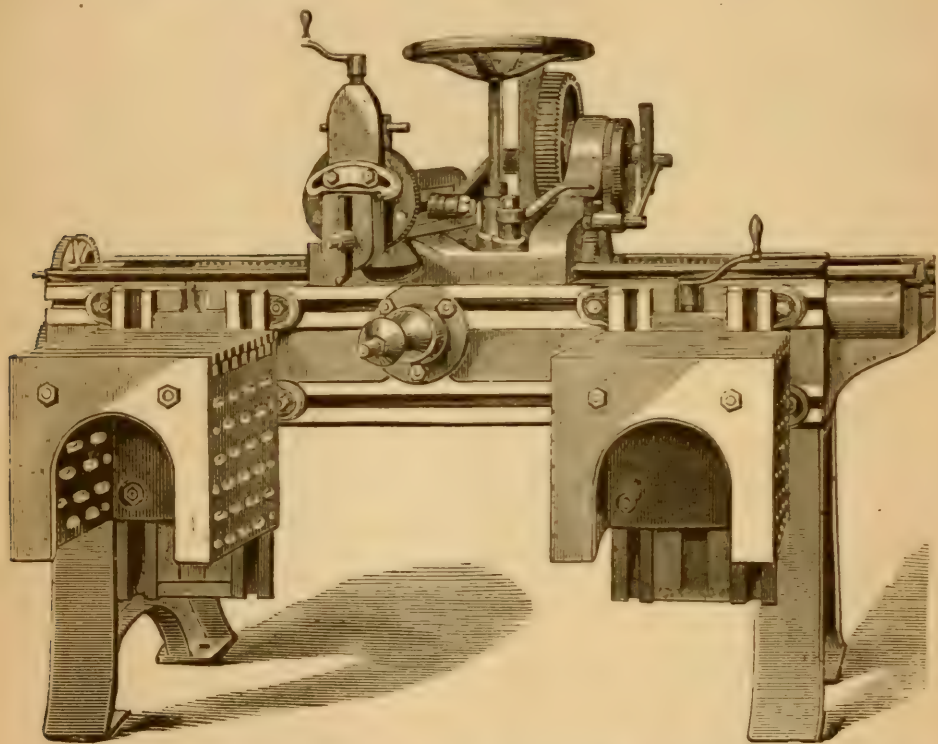
Pennsylvania Day.

Thursday, the 28th of September, was set apart by the Centennial authorities for the celebration of the State of Pennsylvania. The day was particularly well chosen, inasmuch as it was the one hundredth anniversary of the adoption of the first Constitution of Pennsylvania. It was declared by special proclamation of the Governor of the State to be a legal holiday, and in all parts of the State preparations were set on foot and enthusiastically carried out to make it the most memorable occasion in the history of the Exhibition. It was not doubted that the State which had been the mainstay of the Exhibition in all its trials, and which, more than any other, had carried it through to success, would eagerly avail itself of this opportunity of testifying emphatically and unitedly its approval of the manner in which the great enterprise had been carried out.

With the rising of the sun on the morning of September the 28th the city of Philadelphia was astir. Business was generally suspended, and thousands of citizens and visitors sojourning in the city took the early trains for the Exhibition. All through the day the steam and horse railroads, and the various vehicles engaged in the work of transporting passengers, were crowded to their utmost capacity. Trains were arriving all the forenoon from distant points in the State, each bringing hundreds of visitors to swell the great throng.

The entrances to the Exhibition ground were opened at half-past eight o'clock, and immediately there was a rush for the turn-stiles. This continued without intermission for several hours. By ten o'clock the crowd had settled down into a steady stream, and the turn-stiles revolved with the regularity of water-

wheels, receiving and discharging an unbroken stream of humanity, and the constant shower of half dollars falling into the cash-boxes soon showed that the day was to be a success financially as well as in other respects. At one o'clock the reports from the turn-stiles showed that one hundred and seventy-five thousand paying visitors had passed the gates, and still the crowd kept pouring in.



FERRIS & MILES' SHAPING MACHINE, EXHIBITED IN MACHINERY HALL.

"No pen, however inspired," says the *Philadelphia Press*, in its account of the celebration, "could adequately describe the scene presented inside the Centennial grounds an hour after the gates were opened. If the whole world was not centred there, it was very evident that a considerable portion of a State had converged to a focus, and though every broad avenue was alive with humanity, the multitudes seemed to double every hour. The Main Building, being the nearest and chief point of attraction to the main entrance, soon became uncomfortably crowded, and the tens of thousands of delighted guests surged on and on, until

every open structure on the grounds was filled, and every wide avenue turned into a gay boulevard. Among these thronging thousands all classes of society possible to find in a single State were represented, from the most highly cultured to the most ignorant, from the wealthiest to the poorest; but though high and low were mingled together in a seemingly inseparable mass, the best of good nature prevailed, and all social distinctions were forgotten in the common feeling of love for the old Keystone State. Usually nearly the whole number of daily visitors are in the grounds at one o'clock, but yesterday they continued to arrive until very much later, and at three o'clock in the afternoon the scene was indescribably brilliant. In addition to the immense numbers of visitors who came as individuals, there were many thousands belonging to permanent or temporary organizations who came in a body. Many of these were the employés of large firms, and in most cases, where their admission fee was paid by their employers, they proceeded to the grounds in a body, and remained together for some hours afterwards. The men from the Baldwin Locomotive Works were there in full force, and presented a very creditable appearance. The Veteran Corps of the First Infantry, N. G., under Colonel Charles S. Smith, and Company D, of the First Regiment, acted as an escort to the Governor during the day, and their handsome uniforms added greatly to the beauty of the grand spectacle. They were accompanied by the First Regiment Band. The Battalion of Patriarch, I. O. O. F., was headed by the Weccacoe Band. The Junior Order of United American Mechanics, the students of Girard College, with their excellent band, the children of the Soldiers' Orphans' Institute, and the Lincoln Institution, and the members of the Constitutional Convention, all marched through



TOTEM-POST, FROM HAIDAHS,
QUEEN CHARLOTTE ISLANDS,
IN THE UNITED STATES GOV-
ERNMENT BUILDING.

the grounds in a body at different times, and thus one excitement followed another until the two hundred thousand visitors wearied from mere excess of enjoyment. What lent a peculiar charm to the scene was the presence of a large number of school children, and although the little ones must have endured much inconvenience making their way through the crowd, it was evident, from their beaming faces, that the day was one of intense delight. The fiftieth graduating class of the Central High School arrived at the grounds about one o'clock, and proceeding to Belmont, renewed old friendships in the enjoyment of a grand banquet. As the shadows grew longer there was a general movement toward the gates; but it at once became so evident that only a small portion of the outpouring throng could be transported away at one time that thousands returned, in order, as they fondly hoped, to avoid the rush, and also gain at least another hour of enjoyment amid the splendors of the occasion."

Various entertainments were offered to the visitors during the day. There were concerts and musical recitals at the music stand in the Main Building, and performances upon the great organs. The various exhibitors of musical instruments gave performances at their respective stands. The chimes of Machinery Hall were rung at frequent intervals, patriotic and other airs being executed upon the bells by Professor Widdowes. The little folks were amused by the frequent ascent of paper balloons from the open space in the rear of Agricultural Hall. The day was glorious, the beautiful autumn weather being all that could be desired.

At ten o'clock in the morning Governor Hartranft left his quarters at the Globe Hotel, accompanied by a number of distinguished citizens of the State, and proceeded to the Exhibition grounds, under the escort of the First Regiment of Pennsylvania Infantry. The Governor's party and his escort entered the Exhibition grounds by the principal gates on Belmont avenue, and proceeded at once to the Pennsylvania State Building. There they were formally received by General Hawley, Director-General Goshorn, and Mr. John Welsh, on behalf of the

Centennial authorities, and were at once conducted to the Judges' Hall, where the ceremonies of the day were to take place. The building was beautifully decorated inside with the flags of all nations, the colors of the State of Pennsylvania being tastefully draped over the doorway. A raised platform, with a canopy of the national colors, covering a beautiful and mammoth cactus, was reserved for the Governor and the distinguished gentlemen who accompanied him. The hall was densely crowded in all parts, and the audience listened patiently and attentively to the numerous addresses that were made.

The ceremonies were opened by the Hon. Morton McMichael, who introduced, as the presiding officer of the day, Governor John F. Hartranft, who was received with loud cheers. Governor Hartranft acknowledged this greeting in a brief but eloquent address, and introduced to the audience General Joseph R. Hawley, the President of the United States Centennial Commission. General Hawley in fitting terms expressed the obligation of the Centennial Commission and of the whole country to the people of Pennsylvania for the part they had taken in the Exhibition. He was followed by Mr. John Welsh, President of the Centennial Board of Finance, whose address was brief and to the same effect. Governor Hartranft then introduced to the audience the Hon. Benjamin Harris Brewster, the orator of the day, who delivered a lengthy and able oration, reviewing the first century of the history of Pennsylvania. He was frequently applauded. Addresses were then made by ex-Governor Bigler, ex-Governor Pollock, Senator Cameron, Justice Strong, of the United States Supreme Court, and ex-United States Senator Scott. At the close of Senator Scott's remarks Governor Hartranft declared the ceremonies at an end, and the audience dispersed.

In the afternoon Mrs. Gillespie and the other ladies of the Women's Centennial Executive Committee held a reception in Judges' Hall, which was largely attended, many of the most distinguished men of the country being present.

In the afternoon Governor Hartranft held a reception at the State building. The building had been elaborately decorated

both inside and out. The walls were festooned with United States flags, and similar flags waved from every turret, window,

and other possible point on the roof. The entrance was hung with bunting, and in the west room was placed over the large portrait of the Governor the word "Welcome." A number of distinguished persons gathered in the building early in the afternoon, and the grounds without were thronged with a dense crowd.

Shortly after two o'clock the Veteran Corps of the First Pennsylvania Regiment, which had acted as the Governor's escort during the day, marched up the Avenue of the Republic, preceded by Company D, of the First Regiment, and headed by Beck's Band. At the southwest corner of the building the troops turned and marched along the south side, to the west, where they entered the building, and cleared a passage-way for the Governor, who, accompanied by his staff, came in at the eastern or main entrance.



"DIANA." FIGURE IN TERRA-COTTA, EXHIBITED BY GALLOWAY & GRAFF, IN THE MAIN BUILDING.

Proceeding to the Governor's room, Governor Hartranft

received the Centennial authorities and a number of other distinguished gentlemen.

The public reception was now begun. The first to be presented to the Governor were the Soldiers' Orphans, from the State Schools, who passed in review before his Excellency, and were cordially received by him, each being greeted with a hearty handshake and a pleasant smile. The officers and men of the Keystone Battery next filed in and paid their respects to the Governor. Then came the Mayor and the Select and Common Councils of the City of Philadelphia; and finally the escort of troops, which had accompanied the Governor, filed by and shook hands with him. The doors were now thrown open to the people, and until five o'clock they passed by in rapid succession, nearly all managing to take his Excellency by the hand. It was estimated that at least 10,000 persons were received by the Governor. During the reception the Corinthian Quartette, of the American Vocal Union, rendered several songs. Promptly at five o'clock the doors of the State building were closed, and the Governor, retiring to his own room, held an informal reception of his staff officers, and a number of lady visitors. His Excellency then repaired with his escort to the Philadelphia City building, at the eastern side of the grounds, and paid his respects to the Mayor of the city.

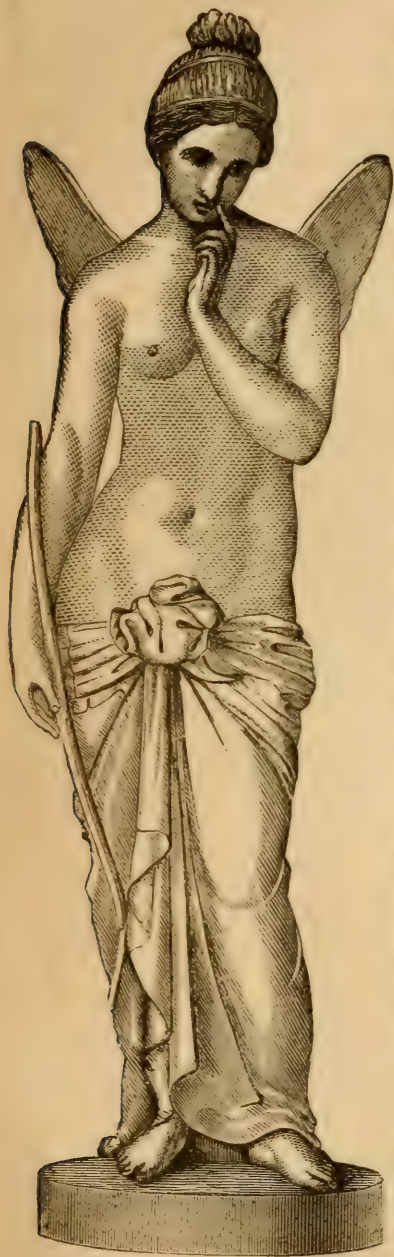
At three o'clock Mayor Stokley held a formal and largely attended reception at the Philadelphia building, near Horticultural Hall.

There was now a lull in the festivities, and the crowds flocked to the various restaurants to obtain their evening meal, or scattered themselves about the grounds. The eating houses were filled to such an extent that it was almost impossible for the guests to receive attention at the hands of the waiters. The utmost good humor prevailed, however, and all through the day there was no rowdiness, no violence or misbehavior on the part of the vast crowd within the grounds.

Towards nightfall the people began to drift steadily towards George's Hill, and by six o'clock the slopes of the hill and the tops of the surrounding buildings were densely crowded. The

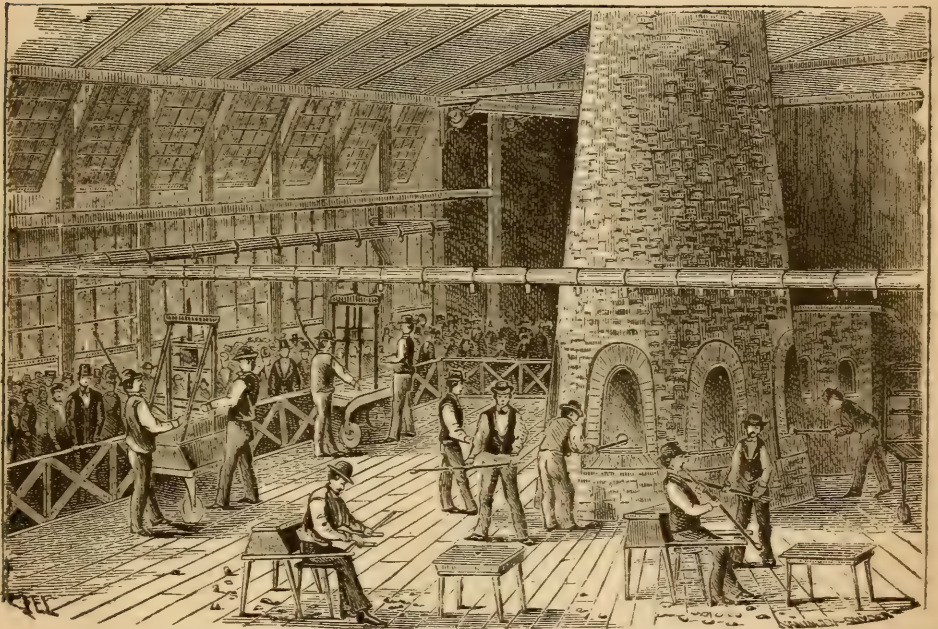
crowd continued to grow larger until half-past seven, the hour for beginning the display of fire-works, which was to conclude the celebration of the day. At least 175,000 people were gathered within the Exhibition grounds at this hour, and as many more were assembled in the streets and the Park outside of the enclosure. The display was in charge of Messrs. Brock & Co., of London, and was one of the finest ever witnessed in this country.

The display began promptly at half-past seven o'clock. From the first salute of aerial maroons to the final display of variously-colored rockets, the interest of the crowd never flagged. The simultaneous illumination of the entire grounds by magnificent colored lights was the first feature of the entertainment, and was peculiarly effective. There were several set pieces, embodying devices emblematic of heroic deeds and suggestive of patriotic purposes. One was a portrait of Washington, another a device in red, white, and blue, containing the words, "Welcome to All Nations." Large balloons, having dazzling artificial lights, were sent heavenward. As they drifted off toward the northeast, colored fire-works were discharged with fine effect. The bursting of the large shells in mid-air, setting fire innumerable stars of every color and tint, so lit up the grounds that



"PSYCHE." FIGURE IN TERRACOTTA, EXHIBITED BY GALLOWAY & GRAFF, IN THE MAIN BUILDING.

the effect was suggestive of dazzling sunlight. Mostly all of the large rockets happily burst just as their downward course was begun, thus sending their showers of stars toward the gazers below with indescribable effect. The programme included nearly every variety of fireworks, from the most simple devices to the most intricate combinations of the kind that human ingenuity and skill have ever devised. The scene was peculiarly impressive. This was especially true toward the last of the programme and at its close. A calcium light of the utmost power had been arranged on the top of Machinery Hall, and as



VIEW OF THE INTERIOR OF THE GLASS-WORKS.

its illuminating rays were turned toward different portions of the grounds in succession the effect was imposing in the extreme. The dazzling artificial light shone upon the lake, fountain, and the waving trees, and the result was one of awe and grandeur. The spray of the fountain seemed like spray of burnished silver; the trees, already assuming the varied and beautiful tints of autumn, seemed like a weird fancy picture instead of a beautiful reality. When the final bouquet of rockets had been fired from George's Hill and the enthusiastic Pennsyl-

vanians turned toward the points of exit at the end of Machinery Hall, their upturned faces, suggesting hope, energy, and unfailing courage, were typical of the towering strength and resources of the Keystone State.

The celebration was now at an end, and the crowd made a rush for the gates, which were flung open wide, in order to allow the people to pass out. The street and steam cars and all the other available vehicles were soon filled, but it was long after



CHINESE PAGODA, IN THE MAIN BUILDING.

midnight before the depots and the streets around the Exhibition were cleared.

The total attendance was as follows: Cash admissions, 257,168; free, 17,751. Total, 274,919. The receipts were \$118,673.75.

Rhode Island Day.

Thursday, October 5th, the day appointed for the Rhode Island celebration, was cold and raw, but in spite of this the

Exhibition grounds were crowded at an early hour. The State building, on the slopes of George's Hill, was handsomely decorated with flags and bunting, and was visited by thousands of people during the day.

At half-past eleven o'clock General Hawley, accompanied by Generals Bradley and Lewis Merrill and Commodore Calhoun, of his staff, and Mr. John Welsh, President of the Centennial Board of Finance, repaired to the United States Hotel, where Governor Lippett was lodging, and escorted the Governor and his staff to Gate A, where a number of the members of the Centennial Commission and the Board of Finance were waiting to receive them. A procession was then formed, and headed by a detachment of the Centennial Guard and the band of the First Brigade of the First Division, the visitors proceeded along Belmont avenue to State avenue, where they turned off towards George's Hill and the Rhode Island State Building.

As the State building was too small to accommodate much of an audience, and moreover had but one entrance, it was decided that Governor Lippett should hold his reception on the porch. The guards at the head of the procession soon cleared a passageway through the crowd, and the Governor and his companions advanced to the porch of the building. Here General Hawley welcomed his Excellency and his attendants in the heartiest manner, and was answered by Governor Lippett with happy effect.

At the close of his Excellency's speech, the reception of visitors began. The Governor standing on the steps of the building received the people one by one as they came up in line, and as each one paid his respects to the Governor he passed over to the west side of the building. The reception ended at three o'clock. Governor Lippett and party then repaired to Machinery Hall, where they were received by Mr. George H. Corliss, Centennial Commissioner from Rhode Island, who explained to them the construction and working of the great engine.

The attendance during the day was as follows: Cash admissions, 89,060; free, 11,886. Total, 100,946. The receipts were \$44,496.



KIOSK OF STUFFED BIRDS EXHIBITED IN THE MAIN BUILDING.

The Italian Day.

One of the most memorable celebrations connected with the Exhibition took place on Thursday, October 12th, on which day the Italian residents of the United States presented to the city of Philadelphia the magnificent marble statue of Christopher Columbus, which now ornaments the West Park. The day was the 386th anniversary of the discovery of the New World by Columbus.

The various Italian civic and military organizations of Philadelphia and other cities which decided to take part in the ceremonies assembled in South Eighth street on the morning of the 12th of October, and proceeded up Eighth street to Chestnut, and thence to Fifth, where they were reviewed by his Honor the Mayor, after which the Mayor and members of both branches of City Councils entered carriages and took the place in line assigned to them in accordance with the programme. Chief Marshal J. Ratto, Esq., headed the line and was followed by a platoon of twenty-four reserve officers, commanded by Lieutenant Crout. The visiting Columbus Guard (Bersaglieri), of New York, came next, headed by the Black Hussar Band dismounted. The riflemen numbered about seventy men, and made a handsome appearance, the officers having an abundance of green ostrich feathers in their low-crowned hats, while those of the privates and non-commissioned officers were black. The red, white, and green of Italy, together with the stars and stripes, were borne by the color-bearers. Following these came the Columbus Monument Association in barouches, and then the Mayor and members of Councils. Attired in their handsome winter uniform, the State Fencible Band preceded the Italian Beneficial Society, of Philadelphia, who carried a handsome blue banner, with the proper inscription. Delegations from New York, Washington, Boston, Baltimore, and other cities were in one body, and bore at the front the banner of the Boston Mutual Relief and Beneficial Society, on which was an elegant painting in oil representing the landing of Columbus. The Italian Colony, of Philadelphia, and G. Garibaldi Society,

of New York, brought up the rear of the line. The line of march was up Fifth to Arch, thence to Broad, to Fairmount avenue, through the Park to Girard avenue, to Belmont avenue, and to the Globe Hotel, where Governor Hartranft and staff were in waiting to accompany them to the site of the monument.

The movement to erect a monument to Christopher Colum-

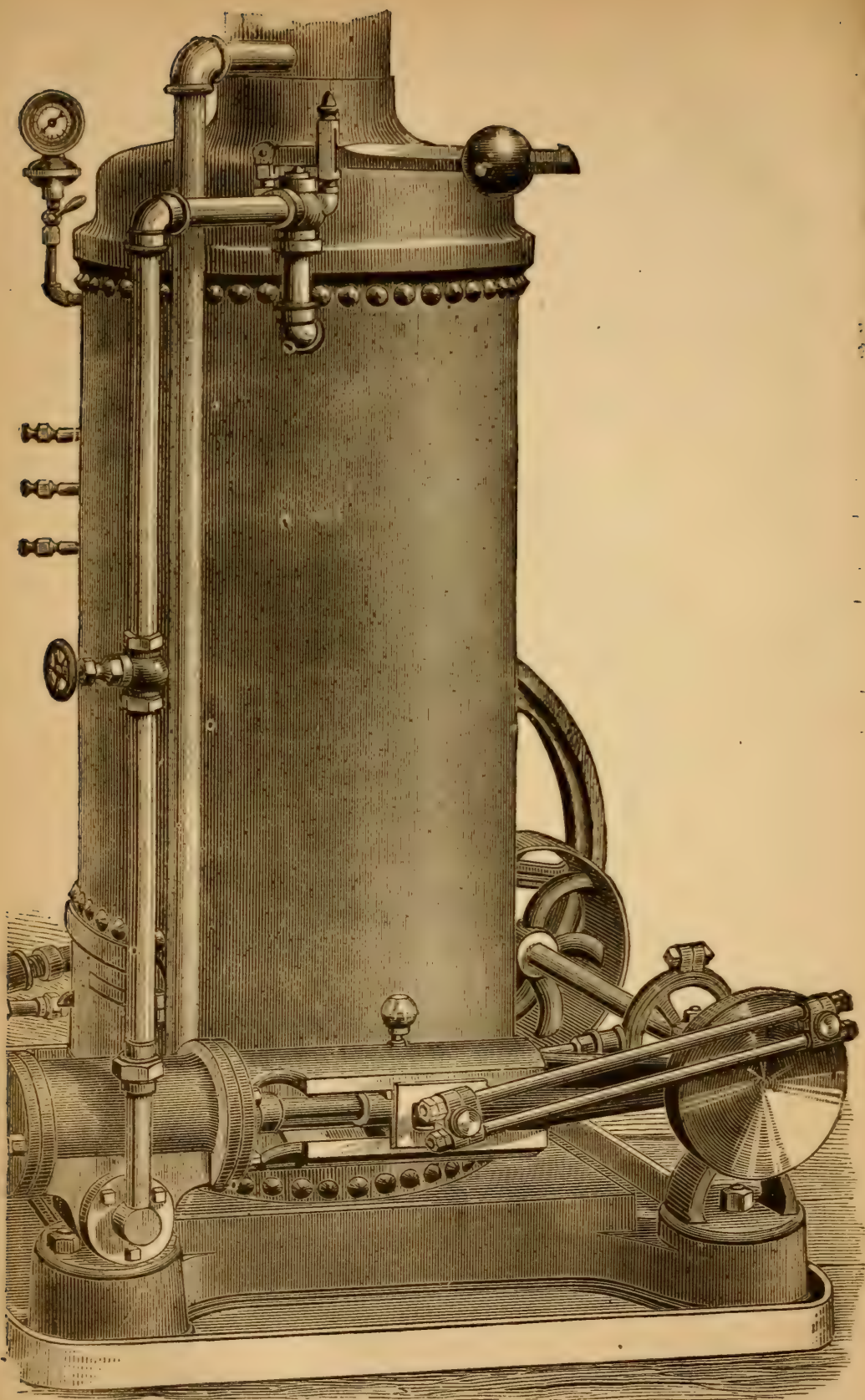


PATENT FOLDING BED, EXHIBITED IN THE MAIN BUILDING.

bus originated in Philadelphia about two years ago, when the Columbus Monument Association was organized, the call for aid in the enterprise being heartily responded to, not only by the various Italian societies in the country, but by individuals who made personal contributions. Professor Salla, of Florence, Italy, being applied to, sent over a design for a monument, which was adopted, and the artist began his work at once. It arrived

in this country in July, 1876, but, as the officers of the association desired to have it placed in position not more than a few days before the time fixed for its dedication, it was not conveyed to the grounds until needed, when it was erected on the site originally selected for it. The entire monument cost \$18,000, and stands twenty-two feet from the ground, the statue of Columbus being ten feet in height, and the pedestal twelve feet. The base is seven feet long by six feet in width. The figure represents Columbus, in the costume of his age and clime, standing on a ship's deck; near his feet being an anchor, coils of rope, and a sailor's dunnage-bag; his right hand resting on a globe fifteen inches in diameter, with the New World outlined on the front face, and supported by a hexagonal column. His left is gracefully extended, and holds a chart of what was once an unknown sea. The head of the statue is bare, and the physiognomy about as represented in the bust of the great navigator at Genoa. The statue faces east, and on the front cap of the pedestal are the words: "Presented to the City of Philadelphia by the Italian Societies." Beneath this is a medallion representing the landing of Columbus. On the opposite side of the cap is inscribed: "Dedicated October 12th, 1876, by the Christopher Columbus Monument Association, on the Anniversary of the Landing of Columbus, October 12th, 1492." Underneath is the Genoese coat-of-arms and the words: "In Commemoration of the First Century of American Independence." On the remaining two sides of the pedestal are the coats-of-arms of Italy and the United States.

The military escort to Governor Hartranft formed on Girard avenue east of Belmont avenue at about two o'clock. It consisted of the following regiments and organizations of the First Brigade, headed by General Brinton and staff: First Regiment, Colonel Benson; Second Regiment, Colonel Lyle; Weccacoe Legion, Captain Denny; Washington Grays, Captain Zane; First City Troop, Captain Fairman Rogers, acting as personal escort to the Governor. The military marched up Belmont avenue, and halted opposite the Globe Hotel, at which point Governor Hartranft took his place in the line. At about three

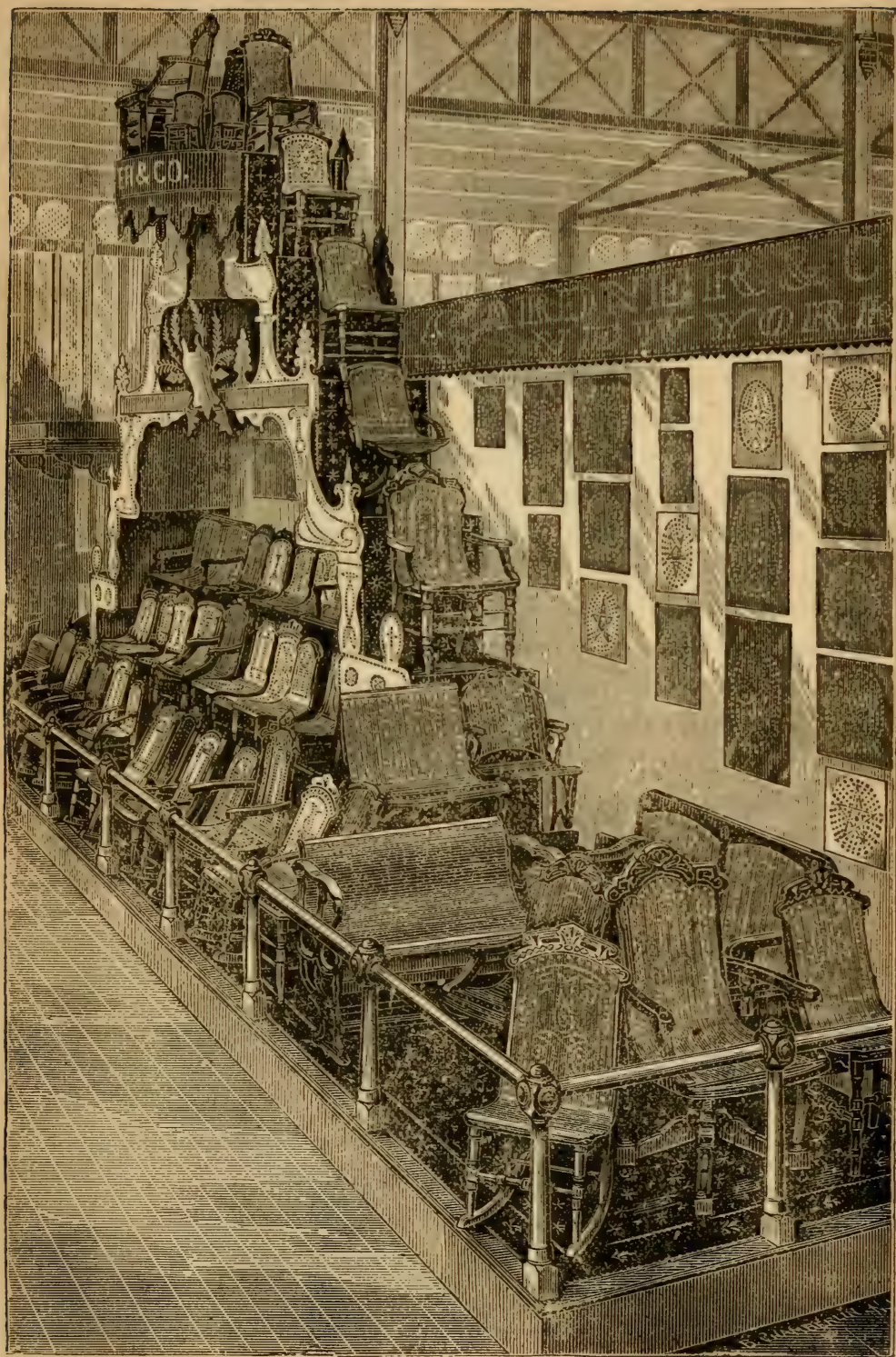


THE WHITMORE PORTABLE STEAM-ENGINE, EXHIBITED IN MACHINERY HALL.

o'clock, the procession from the city having meanwhile arrived, marching through the Exhibition gates at the Belmont avenue entrance, the line proceeded along the avenue to its junction with Fountain avenue, the site of the monument.

The monument was veiled with two large American and Italian colors, and around its base had been erected a platform capable of accommodating about one hundred persons, the space in front being enclosed and supplied with seats for invited guests. The rear of the stage was festooned with American and Italian colors, studded with the coats-of-arms of all nations, and from all sides waved green, red, and white Italian bannerets and red, white, and blue streamers. A force of guards, under Captain Snyder, were in attendance to prevent the anxious multitude from pressing too closely upon the speakers' stand. At half-past three o'clock the military had taken position in a semi-circle skirting the crowd, with the First City Troop in the centre. Governor Hartranft, Mayor Stokley, and Baron Blanc, the Italian minister, advanced to the stage, followed at intervals by the officers of the Italian societies, the orators appointed for the occasion, and the Fairmount Park Commission. Governor Cheney, of New Hampshire, with his staff, in full uniform, also appeared on the platform, and the Black Hussars' Band, of Philadelphia, were assigned a position in front.

After an overture by the band, the exercises were opened by Mr. Charles S. Keyser, of Philadelphia, with whom the suggestion of the memorial statues in the Park originated several years since, and who has long been identified with the work. Mr. Keyser officiated in the conduct of the ceremonies, and introduced Mr. Alonzo M. Viti, Honorary Consul of Italy, and Member of the Royal Commission to the International Exhibition. Mr. Viti briefly stated the motives which had led to the presentation of the statue, and at the close of his remarks the statue was formally unveiled by Governor Hartranft and Baron Blanc, Envoy Extraordinary and Minister Plenipotentiary, from his Majesty the King of Italy to the United States, and Royal Commissioner to the International Exhibition. As



PERFORATED VENEER SEATS.

the two gentlemen, standing on either side of the platform, pulled vigorously at the halyards, the colors entwined around the statue slowly rose from the marble and floated on the breeze from the top of the flagstaffs to which they had been drawn, and disclosed to the cheering multitude the beautiful effigy of the great discoverer. The Italian hymn was given by the band, followed by the Star-Spangled Banner, and a salute of artillery was fired from a battery stationed on George's Hill. An address was then delivered by Governor Hartranft, after which Mr. Nunzio Finelli, the President of the Columbus Monument Association, formally presented the statue to the Commissioners of Fairmount Park. The address of acceptance was delivered by the Hon. Morton McMichael, President of the Park Commission. Brief addresses from a number of distinguished gentlemen present closed the ceremonies.

New Hampshire Day.

Thursday, October 12th, the day of the Italian celebration, was also celebrated as "New Hampshire Day." The programme of each festival was so arranged that the New Hampshire ceremonies were over before those of the Italian societies began.

At a quarter to eleven, in the morning, Governor Cheney and staff, the latter being in full uniform, with the Amoskeag Veteran Corps, numbering ninety-six men, in Continental uniform, commanded by Colonel Wallace as the Governor's body-guard, the entire party being escorted by the cadets of the Virginia Military Institute, numbering one hundred and eighty-five youths, under the command of Colonel Scott Ship, left the United States Hotel, where the gubernatorial party were quartered, marched up Elm avenue, entered the Exhibition grounds by the main entrance, and were there received by a detachment of the Centennial Guard under Major E. H. Butler, who escorted the body to the New Hampshire building.

Presidents Hawley and Welsh acted as the escort of Governor Cheney, the three proceeding on foot, followed by the Governor's staff, members of the Centennial Commission and

Board of Finance, and several thousand citizens of New Hampshire, the escort of military and police taking the lead. The march was enlivened by the music of Brown's Cornet Band, of the Veteran Corps. In the vast throng that soon surrounded the State building it is estimated that there were between 6,000 and 7,000 people from New Hampshire. The rest of the crowd were mainly New Englanders also, of whom it is estimated that there were upward of 13,000 in the city. The Veterans having drawn up to guard the front of the building, Presidents Hawley and Welsh, accompanying Governor Cheney, appeared on the porch of the latter, and were received with great applause.

General Hawley now came forward, and in a few character-



VIEW OF SECTION OF FISH EXHIBIT, UNITED STATES GOVERNMENT BUILDING.

istic remarks welcomed the Governor and people of New Hampshire to the Exhibition, and introduced to the throng gathered about the building his Excellency, Governor Cheney, of New Hampshire, who was received with hearty cheers. The Governor in a brief address expressed his appreciation of the cordial welcome given to himself and the people of his State. A prayer was then offered by the Rev. Mr. Powers, of Manchester, after which the Governor introduced the Hutchinson Family, who sang the well-known song called "The Old Granite State." Governor Cheney then introduced to the audience Professor E. D. Sanborn, of Dartmouth College, who

delivered a lengthy oration on the history of New Hampshire. Brief addresses followed from ex-Governor Straw and others, after which the Governor took his stand in the reception-room and the formal reception of visitors began. It lasted a little more than an hour, and at its close Governor Cheney and staff, with most of the distinguished gentlemen present, proceeded



"THE CENTURY VASE," EXHIBITED BY THE GORHAM COMPANY IN THE
MAIN BUILDING.

to the Columbus Monument, and assisted in the ceremonies there.

The attendance on the 12th of October was as follows: Cash admissions, 101,541; free, 11,881; total, 113,422. The receipts were \$50,536.

Delaware, Maryland and Virginia Day.

The 19th of October, the anniversary of the surrender of the army of Lord Cornwallis to General Washington at Yorktown, was set apart for the joint celebration of the States of Delaware, Maryland and Virginia. The State government of Virginia declined to take part in the celebration, so that the participation of the "Old Dominion" in it was purely informal. It was resolved by the authorities having the affair in charge that the occasion should be one of the most memorable in the history of the Exhibition, and extensive preparations were made for it. A display of fireworks was announced for the night of the 18th of October, while the 19th was to be taken up with the State celebrations and a grand tournament and ball.

The Fireworks.—The second grand display of fireworks was given on the night of the 18th of October, on George's Hill, by Messrs. Brock & Co., of London. It was witnessed by about 60,000 persons within the grounds and a much larger number outside. Precisely at seven o'clock the grounds, upon which both the mist and darkness had settled, were suddenly made brilliant by the simultaneous appearance of several hundred lights of many colors fixed to short poles. This lasted over five minutes, during which one hundred large rockets, the contents of fifty five-inch shells, and six large magnesium balloons shot high into the air. Then followed the simultaneous flight of fifty five-inch shells, that showered thousands of turquoise and ruby stars over the heads of the spectators and veiled the fireworks of nature in the heavens. Then ascended one hundred brilliant tourbillions, thirty large rockets, with twinkling stars; a fountain of fire that rose as if from Vesuvius to the height of one hundred feet; a battery of fifty mines of saucissons; seven pigeons flying along wires to and from their cote; two figures seventy feet in width and sixty feet in height; portraits of President Welsh and Director-General Goshorn, in a burning condition, and one about half the size of one of the others; a portrait of General Hawley; a volley of one hundred eight-inch shells, sending innumerable and dazzling fire-balls of every variety of color up against the sky.

A representation of Independence hall, one hundred and fifty feet long and one hundred feet high, the greater part of it being hidden from most of the spectators by its own smoke; a volley of one hundred mines of saucissons; the simultaneous discharge of fifty ten-inch shells, and the flight of fifty large rockets, each of which liberated twin parachutes carrying several thousand feet high and over two miles from the starting point; fiery representations of balloon baskets, which then burst and showered down countless stars of red, green, blue, white, purple and other colors. These were doubtless seen for forty miles or more on all sides. Then followed a grand salvo of shells fired in rapid succession, and causing a many-colored shower of such vastness and dazzling bewilderment as to cause in the case of many persons no small degree of fright. It seemed as if all the stars of a hundred heavens were concentrated in that shower.



BRITISH MUSEUM VASE, EXHIBITED BY
GALLOWAY & GRAFF.

Next came the grandest and most successful of the fixed pieces—a great cascade of fire two hundred and ten feet long and one hundred feet high. To describe it is to say that a real cascade, if flame-colored, could not have been more natural-looking. Hardly less imposing, and far more startling and dazzling, was the finale—a bouquet of two thousand large rockets. When the last spark had died away a powerful calcium light was thrown over the grounds from the north central tower of Machinery Hall, and the chimes rang out “Home, Sweet Home,” the gates were thrown open, and the crowd dispersed.

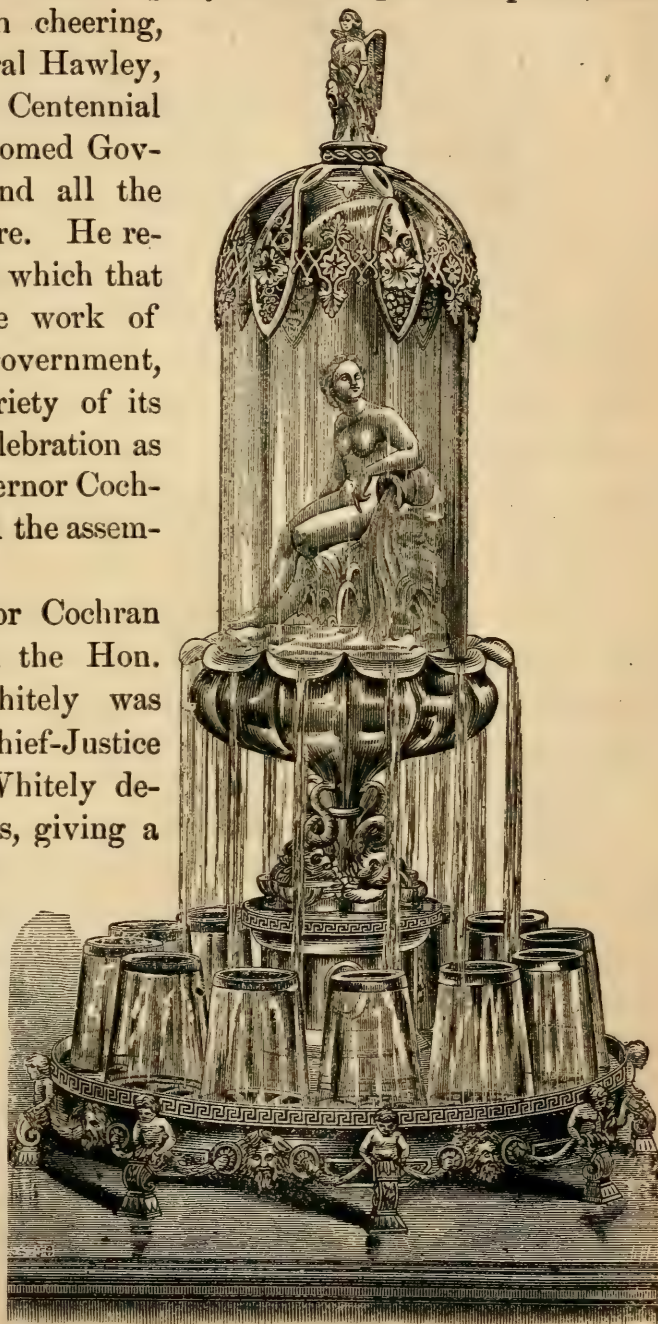
The Delaware Celebration.—Thursday, October 19th, was a beautiful day, and as bright and balmy as the loveliest Indian summer weather could make it. About 11 o'clock the State authorities of Delaware, and the city officials of Wilmington, arrived at the main entrance to the Exhibition grounds, where they were received by the officials of the Centennial Exhibition, and escorted by them to the Delaware State building, adjoining the Maryland building on the east, and which, like the latter, was profusely and tastefully decorated with State and national colors. Above each building floated the flag of its State, and the Delaware structure displayed the coats-of-arms of the Old Thirteen. The procession entered the grounds and marched to the building in the following order: detachment of the Centennial Guards, Major E. H. Butler commanding; First Brigade Band, Carl Heinemann, leader; Governor Cochran, accompanied by Presidents Hawley and Welsh of the Commission and Board of Finance, and escorted by the American Rifles of Wilmington, numbering seventy-five men; the State and national officials of Delaware and the city authorities of Wilmington; Governor Cochran's staff; Colonel George Truitt Maxwell, Chief Marshal; Firemen's Centennial Association of Wilmington; State Centennial Commissioners, members of the United States Centennial Commission and Board of Finance, and the people of Delaware, who dropped in the line along the way until their number exceeded five thousand.

The line having drawn up along State avenue, in front of the

Delaware building, where some ten thousand people had assembled, the gubernatorial party arrived upon the porch, and were greeted with cheering, after which General Hawley, on behalf of the Centennial management, welcomed Governor Cochran and all the people of Delaware. He referred to the part which that State bore in the work of founding the government, and to the propriety of its holding such a celebration as the present. Governor Cochran then addressed the assemblage.

When Governor Cochran ended his speech, the Hon. William G. Whitely was introduced by Chief-Justice Comegys. Mr. Whitely delivered an address, giving a history of Delaware from its first settlement to the present day.

Mr. Whitely's address being ended, Governor Cochran began his reception of visitors, first receiving the respects of the Centennial Commission, Board of Finance, and other



TUMBLER DRAINER, AND WATER-JET, EXHIBITED BY
CHARLES LIPPINCOTT & CO., IN MACHINERY HALL.

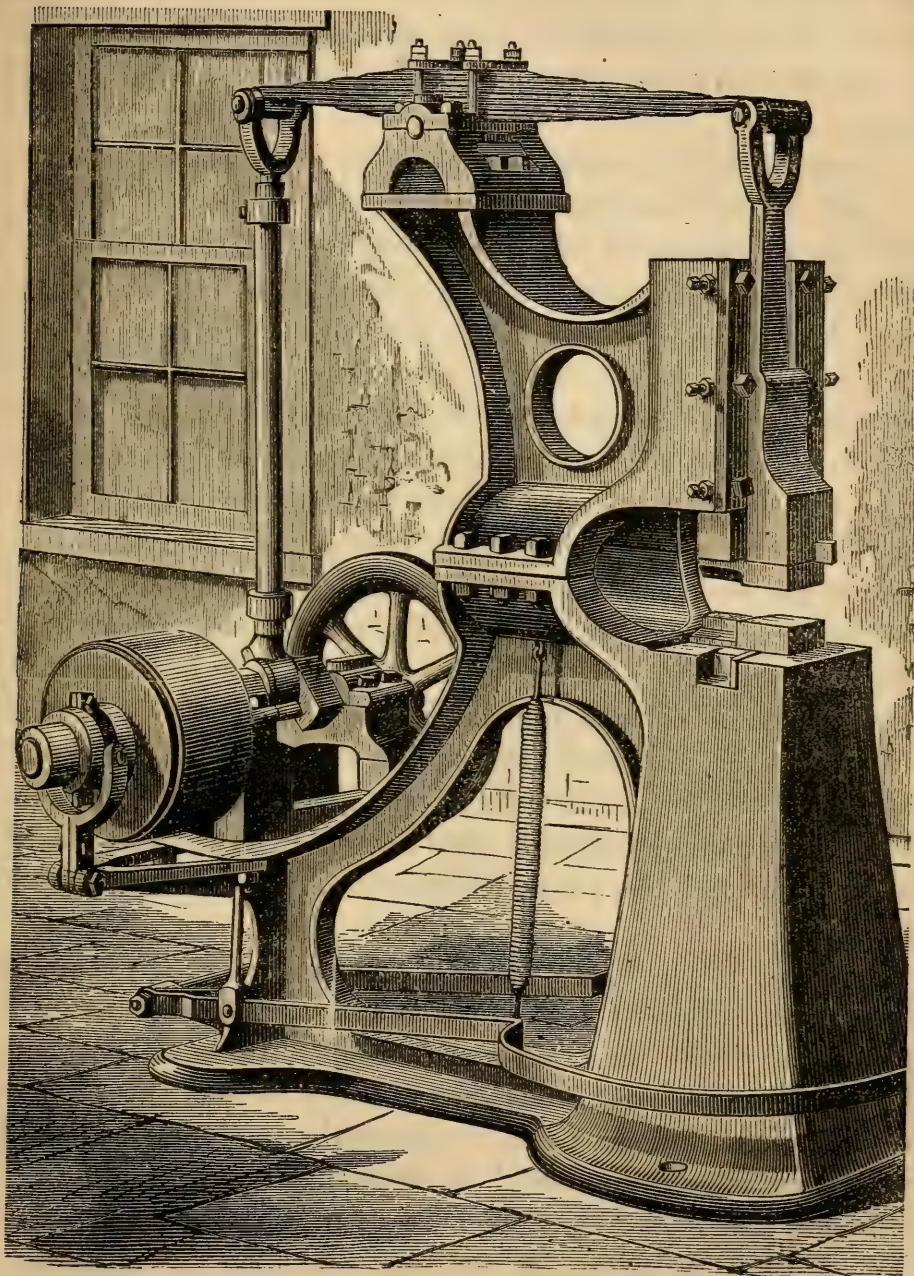
prominent officials of the Exhibition. The guests were introduced

by Colonel Maxwell, chief of staff. As many as could shake hands with his Excellency in an hour and a quarter, at the rate of about forty-five a minute, did so. By this time their neighbors of Maryland had assembled in such numbers, and become so enthusiastic that the Delaware building began to grow deserted, all attention being drawn to the former quarter.

The Maryland Celebration.—At a quarter past twelve o'clock the participants in the Maryland celebration entered the Exhibition grounds by the main entrance, and proceeded to the Maryland State building in the following order: Detachment of the Centennial Guard, under Major E. H. Butler; First Brigade Band, Governor Carroll and staff, on horseback, the staff being in full uniform and the Governor in citizen's dress; Second Brigade, Maryland National Guard, under General James R. Herbert, and composed of the Fifth and Sixth Regiments, commanded, respectively, by Colonel H. T. Loney and Colonel Clarence Peters. As the procession entered the grounds it was reviewed by Presidents Hawley and Welsh, with other representatives of the Centennial Commission and Board of Finance, who afterwards fell in line at the head of the people of Maryland, who brought up the rear of the line. Governor Carroll and staff halted in front of the Maryland building and reviewed the military, which marched past and up George's Hill, the First Brigade Band performing martial and patriotic airs. The marching of the Fifth was noticeably fine, and elicited great applause.

The Governor and staff then dismounted, and were received by President Welsh and other members of the Board of Finance, who escorted the gubernatorial party to the porch of the Maryland building, amid the strains of "Maryland, My Maryland," by the First Brigade Band, their favorite air; and the noble form of their Governor, who now confronted them from the porch, aroused the enthusiasm of the people to its highest pitch, and their cheers drowned the music. Then followed a medley of "Away Down South in Dixie," "Yankee Doodle," and kindred airs by the band, after which Governor Cochran, who had stolen a few moments from his own celebration, arrived,

under the escort of General Hawley, to pay his respects to Governor Carroll. Governor Hartranft, who, all the morning, had



PALMER POWER SPRING-HAMMER, EXHIBITED IN MACHINERY HALL.

been everywhere that he should be, and done everything that he could do for the honor of the visitors, fell in at this point,

and made it a gubernatorial trio. Presently the members of the Centennial Commission and Board of Finance, most of them accompanied by ladies, and several foreign gentlemen, including Mr. Wu Ying Ding, the Chinese mandarin (in full native costume), arrived and entered the building, after which the oratory began.

General Hawley, addressing Governor Carroll, said that the United States Centennial Commission and Board of Finance, likewise all connected with the management of the Centennial, bade him and his people a most hearty welcome. Maryland, said he, had a glorious share in the events celebrated during this Centennial year, and her sister States do not forget what she has done for the honor of the star-spangled banner. "I am here," he concluded, "to bid you a heartier welcome than language can express. I need not say that the Governor of Maryland deserves all the esteem that Americans can give a faithful citizen and an able executive officer; nor can Americans soon forget his illustrious great-grandsire, Charles Carroll, of Carrollton, the man who signed his post-office address to the Declaration of Independence." [Great applause.] Governor Carroll then arose, and, when the loud and long-continued applause which greeted him had subsided, made a brief but eloquent reply to General Hawley, thanking him and the Centennial authorities for the welcome he and the people of Maryland had received at their hands.

Governor Denison, Commissioner of the District of Columbia, was then introduced by General Hawley. He was glad to be there to represent the District of Columbia, and he believed that if it were possible for Americans to feel a greater love for their country than they possess, the vast multitude of citizens present would go home so impressed by what they had seen and heard this day that they would be better patriots than ever before. Mr. J. G. L. Findlay, the orator of the day, was then introduced, and spoke at great length on the history and resources of Maryland.

The Hon. Thomas Wilson, Commissioner of the District of Columbia, who was then introduced, said that it was proper

that the Centennial celebration of Maryland and the District of Columbia should be held jointly. The latter is bone of Maryland's bone, and flesh of her flesh. Maryland gave part of herself that she might live. "All hail, then, to our mother State of Maryland." The speaker then delivered an eloquent and thorough history of the District of Columbia, and of the foundation and progress of the city of Washington.

After the close of Mr. Wilson's address, Governor Carroll took his stand in the reception-room, where over five thousand persons desirous of giving his hand a friendly shake availed themselves of the opportunity to do so, they being introduced to him by Adjutant-General Frank A. Bond, chief of the gubernatorial staff. About three o'clock Governor Carroll was obliged to welcome, en masse, the thousands awaiting outside to grasp his hand. Then he and his staff proceeded on horseback to witness the great tournament, which had begun some time previously on the eastern slope of George's Hill.

The Virginia Celebration.—The Virginia celebration was entirely informal, there being no official representation of the State at the Exhibition. At the Virginia building there was open house and lunch for all visitors from the Old Dominion who wished to partake of it. The number of Virginians present on the grounds was about 5,000. In addition to these there were about 800 visitors from West Virginia, who rendezvoused at their State building, but took no part in the ceremonies of the day.

The Tournament.—The great feature of the day was the Tournament, a novel sight in Philadelphia. The following is the Philadelphia *Times'* graphic description of it:

Sixty thousand persons stood on the slope of George's Hill yesterday afternoon to look at the Centennial Tournament. And a pretty sight they made. Full half of them were ladies, in bright dresses and gay ribbons; here a knot of uniformed police; there a party of eager sight-seers, be-badged all over with blue ribbons and gilt letters. Everywhere a patient, quiet crowd, waiting in the hot sun for the show to begin. Further down the hill, toward the west end of Machinery Hall, were

ten thousand more, perched on every available elevation, covering the pedestals of the Catholic fountain, crowding the towers of the large buildings, and crunching along over the gravel roofs of the neighboring structures. The high elevator, at the top of the hill, was alive with people, and the Exhibition fence, in a semi-circle of half a mile or more, was ornamented with a fringe of human faces.

This great crowd had gathered to see a genuine Southern tournament. The like of it never was seen in Philadelphia before. It was arranged by men who first saw the light below Mason and Dixon's line; it was carried through by them, and to them was to belong the credit or discredit of the day, as events might determine. A tournament down South is everybody's holiday. Not so very far down South either, for it is only in Maryland and Virginia that the tourney grows to its full height: in the far South it is not much better known than in the North; and, very appropriately, nearly everybody who was interested in the management of yesterday's pageant was from either Maryland or Virginia.

There were fifteen knights, representing the thirteen original States, the Union, and the Centennial, and the day's work before them was to ride over a given course, thrust their spears through diminutive rings and enjoy the plaudits of the multitude. The course proper, at the foot of George's Hill, was about three hundred yards long; at intervals of fifty yards were three arches, fifteen feet high by ten or twelve feet wide. From the horizontal bar forming the top of each frame hung a wooden rod, ending in a piece of iron a foot or more in length, and from each of these three iron endings was suspended a small red ring, an inch and a half or thereabouts in diameter. The rules of the tournament required that each knight should ride at a full run, and that each knight's spear should be at least six feet long. Every rider, then, must start a hundred yards or more from the first ring, control his horse, poise his spear, and be in perfect condition when the first arch was reached. To knock a ring from its frail fastening availed the knight nothing; a breath of wind or a touch with the lance

would do that ; but each rider must thrust his spear through the ring, or through all three of them, if he could, and bring it still impaled upon his spear, to be laid at the feet of the judges. The rings used yesterday were much smaller than is customary. Three inches in diameter, and even four inches, is not an unusual size, and a two-inch ring is considered uncommonly diffi-



EXHIBIT OF SEEDS IN AGRICULTURAL HALL.

cult to capture. But the rings used yesterday were smaller than any of these ; bringing into play all the nerve and skill that the riders possessed, and this fact was not appreciated by the seventy thousand spectators, who could not know the extreme difficulty of impaling so small a ring when going at full speed.

At two o'clock the judges were in their stand, and the

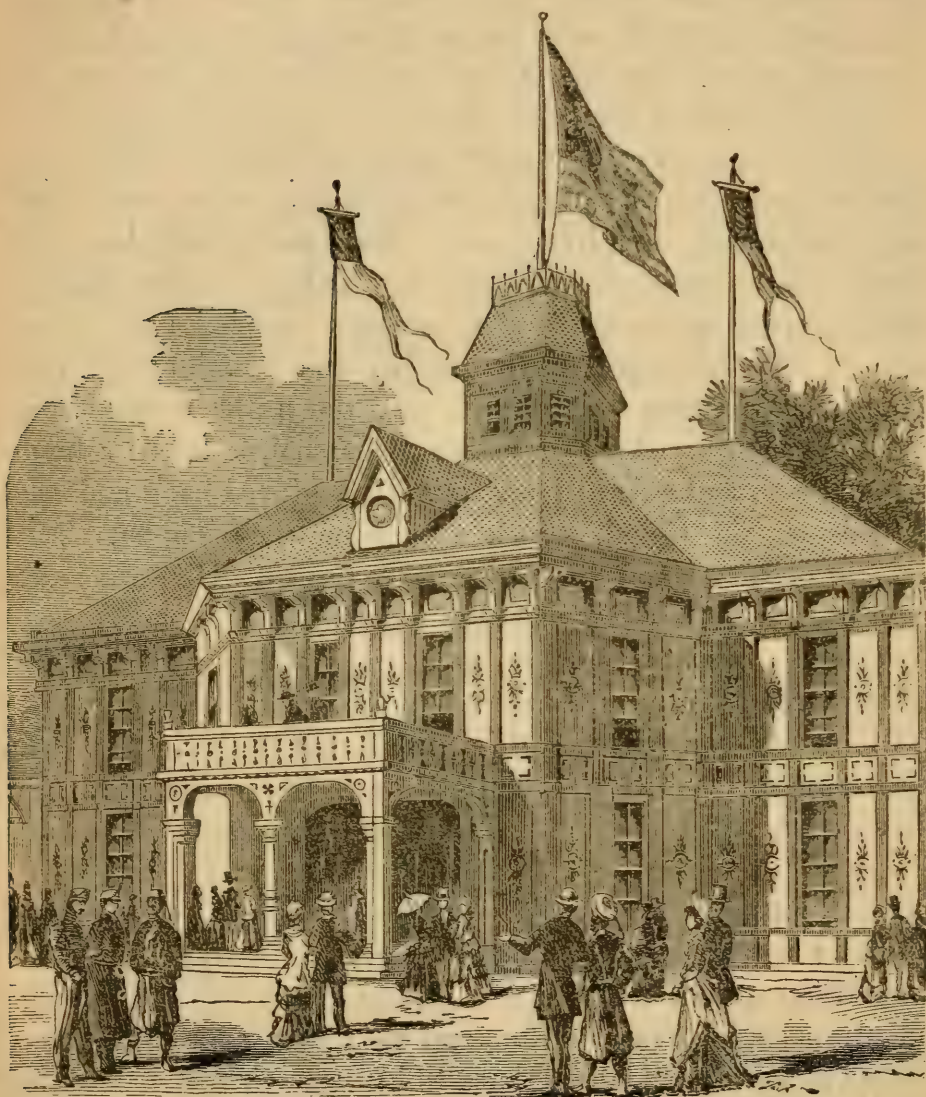
knights stood waiting for the word. Colonel Skinner, Doctor Morgan, C. M. Barton, General Torbert, and H. J. Smith had been appointed judges, and the knights were H. Crozier, representing New Hampshire; E. H. McFarland, Jr., representing Massachusetts; Wm. P. Bryan, representing Connecticut; Geo. V. Bacon, representing New York; C. D. Chapman, representing New Jersey; H. M. Perry, representing Pennsylvania; R. L. Kane, representing Delaware; R. W. Hereford, representing Maryland; P. A. Scaggs, representing Virginia; J. M. Hardy, representing North Carolina; F. Nelson Jarboe, representing South Carolina; J. A. Fox, representing Georgia; Charles White, Jr., representing the Centennial; and A. B. Suit, representing the Union. The knights, however, were not genuine representatives of the States that they were supposed to represent, and thus the tournament lost the element of rivalry between the thirteen States that might otherwise have added to its interest. Nearly every one of the contestants was from either Maryland or Virginia. Hardy, representing North Carolina, is a North Carolinian, and nobody would accuse Chapman of being anything but a Jerseyman, but these were about the only exceptions. Chief Marshal Suit had garnered in the amateur knights from Maryland and Virginia, and to them the spectators are chiefly indebted for their day's amusement. William P. Bryan, for example, who represented Connecticut, is from Prince George's county, Maryland; O. A. Fox, the knight of Georgia, is a Virginian; Charles White, Jr., the Centennial knight, is a Marylander; and A. B. Suit, knight of the Union, and the chief marshal's youthful son, is a Virginian.

The chief marshal, after brushing the Centennial dust from the shoulders of his velvet coat, and readjusting his broad, red sash, mounted his charger and announced that he was ready for the fray. The knights, at the bidding of the four mounted heralds in gorgeous uniforms of crimson, green, and gold, with hoarse voices and shining trumpets, then drew up in line in front of the judges' stand, with hats in hand, to listen to an introductory speech by Colonel J. J. Stewart, of Baltimore. The colonel told them of the honor and glory of knighthood

and chivalry, but he took longer to tell it than the crowd thought necessary or expedient, and at the end of five minutes or so the whole hill-side broke out into a roar, and when the colonel kept on, in spite of the warning, he was interrupted with cries of "sit down," and "cut her short, old man," but he finished his speech, and the fifteen knights cantered down to the west end of the course, and waited each for his turn to exhibit his skill for his State, his true love, and his honor.

Colonel Suit sat with dignity upon the back of a fine steed that insisted upon elevating a pair of shining shoes every time the band struck up a lively note. The colonel took his place beside the centre arch and shouted "Knight of New Hampshire, prepare to charge!" The assistant marshal next below him in the line repeated the words, and "Knight of New Hampshire, prepare to charge," rang down the course from mouth to mouth. Another assistant marshal, in another huge crimson sash and a cocked hat, raised his gloved hand and the heralds, at the signal, struck a note on their bugles. The Knight of New Hampshire prepared to charge. He started out on a trot, struck a gallop and then spurred his horse into a run. Not such a fast run, however, as he might have struck if he had entered as fully as his rider into the spirit of the occasion. Still he was on a run, and that was all that the rules required. The spear was poised, the rider's eye was on the goal, and the first ring rolled in the dust. The second ring followed it; but the third was nicely impaled upon the lance, and "Knight of New Hampshire, one ring," the judges announced. Massachusetts did not do so well. Massachusetts, unfortunately, had a very frisky gray horse, that had an unpleasant habit of shying off at the slightest provocation, and the result was that the Bay State's gallant knight went back to his post without having to stop to tell the judges how many rings he had taken. Rhode Island did better—a little better—taking one ring. Connecticut took one ring, and New York the same. Then came the representative of the Keystone State. He was arrayed in gorgeous shining armor. But the Keystone and the armor came to grief, for never a ring crowned his efforts. New Jersey's

little representative, on the smallest and friskiest of mustang ponies, took two rings, and earned them well, for he was a skilful and daring rider, and poised his spear with the practised eye of a genuine knight. Delaware's representative, who was a



TICKET-OFFICE OF THE PENNSYLVANIA RAILROAD, IN THE EXHIBITION GROUNDS.

Baltimorean, rode slowly up to the first arch, slowly up to the second, slowly up to the third and took all three rings. Maryland's knight, also riding slowly, took one ring. Virginia took one. North Carolina's representative, handsomely equipped

with a suit of golden armor, and looking every inch a knight—a fearless and accomplished rider, and all over a man—a native of the State that he represented, dashed up to the first arch with such speed that he carried away the rod from which the ring was suspended. But not dismayed by this, he kept up his speed and laid before the judges the two remaining rings. He asked, with apparent justice, that he might be allowed a trial at one more ring, to atone for the breaking of the arch, and the judges replied that he should have dropped his lance when the ring came down. “It is not knightly to drop your spear,” the knight replied, and the crowd heard him and cheered him. The judges, however, offered to let him give up his two rings and try at all three rings again, but this the knight very wisely declined. South Carolina’s man, riding very fast and very gracefully, took all three of the rings. Georgia took none. The Knight of the Union, a smooth-faced little boy, mounted on the smallest of gray ponies, galloped up to the first arch, stopped, dodged his spear at the ring, missed it, galloped up to the second, dodged at the ring, missed it, galloped up to the third, dodged at the ring, missed it, and cantered back to the start amidst the shouts of the multitude. The Knight of the Centennial did better, taking two rings.

This ended what, in a horse race, would be called the first heat. There were three such trials, giving each knight a chance at nine rings. The knight who brought home the most rings was to be winner of the tournament, and winner, of course, of the first prize. Each trial was very nearly a repetition of the first. The North Carolina man carried away another stick, and the Massachusetts steed shied off again, the judges giving his rider another chance for the rings.

While the second trial was in progress, an array of uniformed horsemen filed across the brow of the hill, and a few minutes later a uniformed courier galloped over the course and announced “Governor Carroll, of Maryland.” He was followed shortly by the Governor and his staff, the former mounting the judges’ stand, where Governor Hartranft soon appeared. The band played “My Maryland” and “Hail Columbia,” and the multitude cheered.

Delaware at length carried off the honors, through the prowess and skill of her Baltimorean champion, and when the knights were drawn up in line before the judges' stand, to hear the decisions, there was such a glimmering, and glittering, and shining of fancy costumes as would make a fortune for any shop that sold cotton velvets and gilt facings. Then the knights went over to the Transcontinental to supper. The following is the record :

KNIGHTS.	RINGS.			Total.
	1st trial.	2d trial.	3d trial.	
New Hampshire.....	1	1	3	5
Massachusetts.....	0	0	1	1
Rhode Island.....	1	1	2	4
Connecticut.....	1	3	2	6
New York.....	1	0	1	2
Pennsylvania.....	0	1	1	2
New Jersey.....	2	1	2	5
Delaware.....	3	2	3	8
Maryland.....	1	2	2	5
Virginia.....	1	1	1	3
North Carolina.....	2	0	1	3
South Carolina.....	3	1	2	6
Georgia.....	0	2	0	2
The Union.....	0	1	1	2
Centennial.....	2	1	3	6

The Knight of Pennsylvania was then allowed another chance at one ring, the centre ring, in his first trial, having been misplaced. He won the ring, raising Pennsylvania's score to three.

The Knights of Connecticut, South Carolina, and the Centennial, having each six rings, then competed for the second prize, with the following result : Connecticut, one ; South Carolina, one ; Centennial, two. In a further trial between Connecticut and South Carolina, the former made two rings and the latter one.

New Hampshire, New Jersey, and Maryland, having five rings each, then rode for the third prize, New Hampshire taking one ring additional, New Jersey two, and Maryland three.

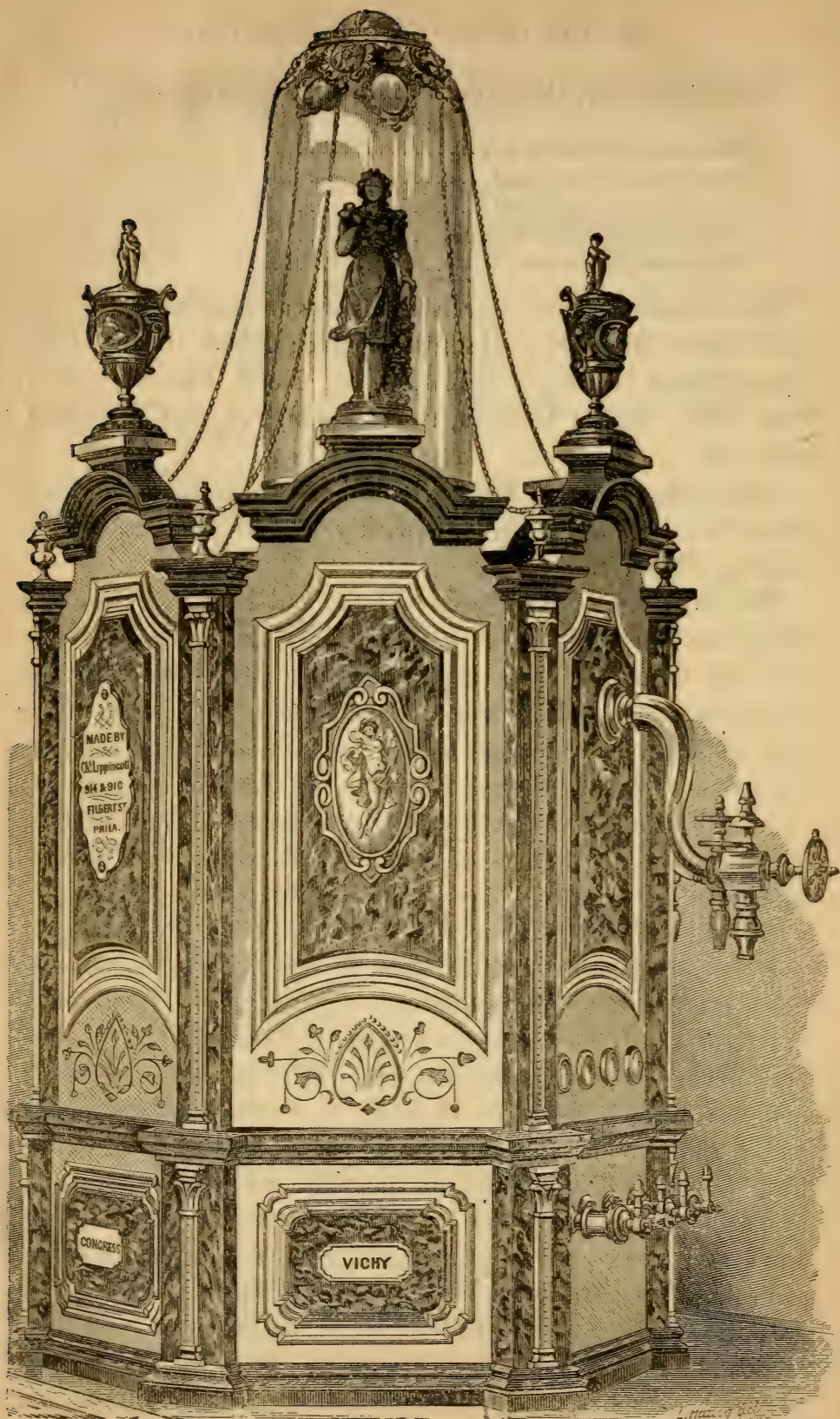
The prizes were, therefore, won in the following order :

	KINGS.
First prize, Delaware.....	8
Second prize, Centennial.....	6
Third prize, Connecticut.....	6
Fourth prize, South Carolina.....	6
Fifth prize, Maryland.....	5

The standing of the other Knights was announced as follows : New Jersey, five ; New Hampshire, five ; Rhode Island, four ; Pennsylvania, three ; Virginia, three ; North Carolina, three ; New York, three ; Georgia, two ; Union, two, and Massachusetts, one.

The prizes contested for by the knights consisted of gold and silver tea-sets, elegant bronzes, richly carved pitchers, breech-loading rifles, etc.

The crowning of the Queen of Love and Beauty, by the successful knight, took place in the evening, at the Judges' Hall, and was witnessed by a large audience. The tickets to this ceremony were sold at five dollars a piece, the money being used to defray the expenses of the tournament. The hall was handsomely decorated, a throne having been erected on the south side, the platform brilliantly illuminated with candelabra, upheld by bronze figures of knights and pages, and bordered by pyramids of rare exotics. The balconies were early filled with ladies and gentlemen, and by eight o'clock the throng of visitors increased so rapidly that it was found necessary to bring the first floor into requisition. At half-past eight o'clock the Reception Committee entered, with General A. T. A. Torbert, master of ceremonies, and Hon. J. F. Stewart, the orator, and were soon afterwards followed by the knights, marshals, and heralds. These, with the exception of the five successful knights, who were escorted to the platform, took positions at the back of the throne, and then the arrival of the Queen of Love and Beauty, Miss Perkins, of Buckingham county, Virginia, and her Maids of Honor, Miss Griffith, of Maryland ; Miss Holland, of Florida ; Miss Taylor, of Delaware, and Miss Bladen, of Philadelphia, was announced. All eyes were turned toward the entrance, and in a moment afterwards the Queen and



SODA FOUNTAIN, EXHIBITED BY CHAS. LIPPINCOTT & CO., IN MACHINERY HALL.

her attendants, all attired in white satin, appeared, and with their young faces illuminated by the rays of a calcium light, and beaming with joyous anticipation, advanced to the throne, which now, surrounded with fair ladies, gallant knights, heralds, pages, and marshals, presented a picture of rare magnificence. The Hon. J. F. Stewart was again introduced, and delivered a brief address appropriate to the occasion, after which the victor of the tournament placed upon the head of the Queen a silver crown. The Maids of Honor were next crowned by the four remaining knights, and then began the reception, the participants in the tournament being first presented. The names of the successful contestants were afterwards read by Horace J. Smith, Esq., and the prizes awarded. The novel ceremonial concluded with the coronation ball, which was heartily enjoyed by all who were so fortunate as to be present.

The attendance on the 19th of October was as follows: Cash admissions, 161,355; free, 15,052; total, 176,407. The receipts were \$80,367.50. The day thus ranks next to the Pennsylvania celebration in the number of persons present.

Ohio Day.

Thursday, October 26th, was assigned to the State of Ohio for her special celebration. Governor Rutherford B. Hayes arrived in Philadelphia on the afternoon of the 25th, and took up his quarters at the Transcontinental Hotel, opposite the Exhibition.

On the morning of the 26th large crowds poured into the Exhibition grounds, and by ten o'clock a dense mass of people had assembled around the Ohio State building for the purpose of doing honor to the Governor of the Buckeye State. It was estimated that at least 30,000 people of Ohio were present on the occasion. The Ohio building was gayly decorated with flags and bunting, and presented a handsome and attractive appearance.

At eleven o'clock, Governor Hayes, accompanied by his staff, left the Transcontinental hotel, and repaired to the main entrance to the Exhibition grounds on Belmont avenue. He was

met there by General Hawley, Director-General Goshorn, President John Welsh, and members of the Centennial Commission.

A procession was formed headed by the First Regiment band and a platoon

of Centennial Guards. As it passed down along Belmont avenue the chimes rang out a welcome, the crowds along the line cheered lustily, and the scene was an inspiring one.

When Governor Hayes appeared on the east portico of the Ohio building, among the distinguished people surrounding him were Hon. Benjamin F. Wade, Hon. Amos Townsend, Hon. R. C. Parsons, General George McCook, ex-Governor Edward F. Noyes, General Bucklin, Hon. Edwin D. Morgan, Governor Hartranft, and others. The appearance of the Governor was the signal for prolonged cheers, and when the applause had in a measure subsided, General Hawley came forward



JAPANESE BRONZE VASE, IN THE MAIN BUILDING.

and introduced Governor Hayes to the multitude. The Governor was received with enthusiastic cheers, and when these had died away delivered an eloquent address, which was frequently applauded. The Governor then took his stand in the reception-room, and the people filed in rapidly, took him by the hand, and passed out. The reception continued for two hours, and was marked by the greatest enthusiasm.

Shortly after two o'clock it became apparent that it would be impossible to admit all who wished to pay their respects to the Governor of Ohio, even should the reception be prolonged until nightfall. Governor Hayes therefore yielded to the suggestions of the State managers and brought the ceremony to a close. He then ascended to the balcony, and addressed the throng without, thanking them for their attentions to him, and expressing his regret that he was not able to greet each one personally. The announcement of their disappointment was received by the thousands below in the best of humor, the Governor was again heartily cheered, and as he retired the crowd began slowly to disperse. At fifteen minutes before three o'clock the Governor, accompanied by Director-General Goshorn, left the building and took the cars on the steam railway for the Memorial Hall station, where he alighted and passed through the Main Building. At about four o'clock, while making a tour of the buildings and grounds, under the escort of Mr. Goshorn and several members of the gubernatorial staff, Governor Hayes arrived in the vicinity of the Municipal building, at which the commercial exchanges of other cities were being entertained at lunch by their Philadelphia brethren. At the door of the building the Governor and his companions hesitated, and were on the point of withdrawing, when, upon the solicitation of Mayor Stokley, the party were induced to enter. Governor Hayes was presented to the company by Mr. E. Harper Jeffries, of Philadelphia, and received with hearty applause. The Governor responded in acknowledgment of the cordiality of his reception, which, he said, he construed to have been tendered not as a compliment to himself as an individual, but to the office of the chief executive of the great State of Ohio. Addressing Mayor Stokley, he added, that the pleasure of meeting so many of the representative men of the business interests of the country was an unexpected one, and that as he had been honored with an introduction, his only purpose was to pay his respects to the gentlemen present. He thanked the people of Philadelphia, through their Mayor, for the generous manner in which they had greeted the name of Ohio, and the welcome they had extended to her

executive, and closed by saying that whatever may be the result of the present ephemeral political strife, we would all remember that we are Americans. The Governor's brief remarks were interspersed with rounds of cheers, which were renewed upon their conclusion. Mayor Stokley followed in some pertinent remarks, and the visitors in a short time withdrew to continue their trip through the enclosure.

The 26th of October was also the occasion of a reunion of the merchants of the principal cities of the Union. The ceremonies were held in the Exhibition grounds. The Commercial Exchange, of Philadelphia, met at its own building, and at the roll-call there were 600 names answered to. The Drug Exchange also met at the Commercial Exchange building, and the entire body, and 200 members were present. Both bodies took the cars of the Pennsylvania railroad for the Exhibition, where they were joined by the Philadelphia Stock Brokers, 300 in number, and the Grocers' Association, with 75 members.

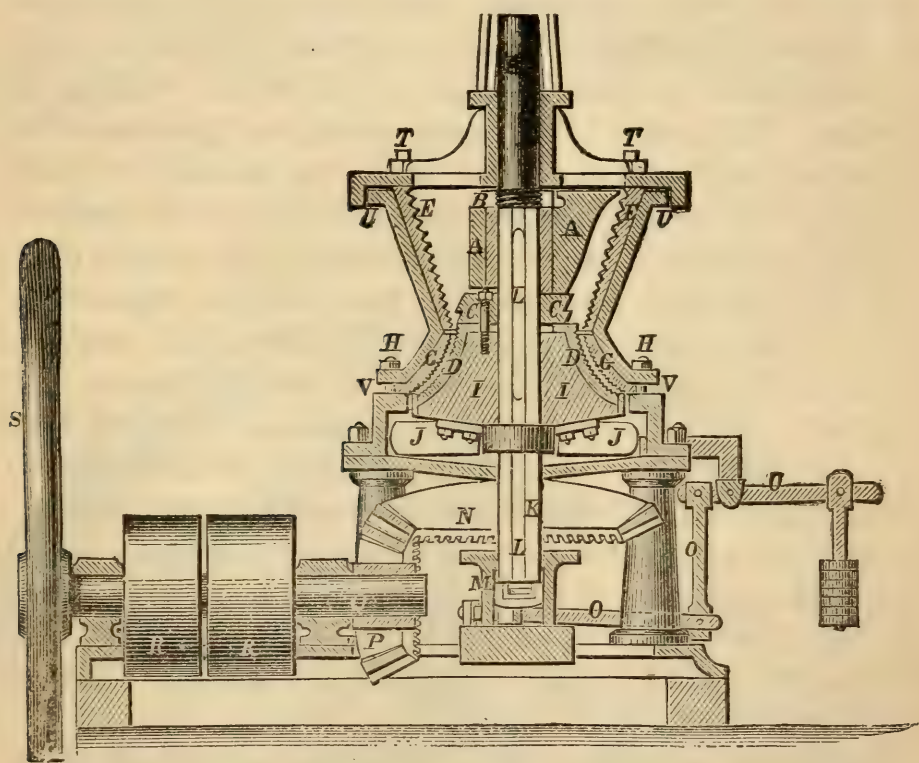
As a grand national reunion of the great capitalists of the great cities of the Union, the day was a remarkable occasion. There were thousands of those whose successful mercantile ventures have given them high standing in moneyed circles—of men who are known to be leaders in matters of finance and commerce.

At the Centennial depot they waited until several delegations from other cities swelled the gathering. First came the Baltimore Corn and Flour Exchange, 500 in number; then followed the Commercial Exchange, of Wilmington, Delaware, 100; Trenton Board of Trade, 200. The great excursion from New York came in two sections, numbering 1,200, and composed of the following bodies:

The Produce Exchange, the Cheap Transportation Exchange, the Cotton Exchange, the Board of Trade, and the Stock Exchange. The entire body then formed in line, and headed by Grafulla's band, and escorted by President Welsh and the Board of Finance, proceeded to the Pennsylvania State building.

It was about quarter after twelve o'clock when the visitors, accompanied by the Philadelphia delegation, arrived at the

Pennsylvania State building, but long before they even put in an appearance upon the grounds, a crowd had collected on the lawn before the structure, and filled the spacious apartments of the pavilion. It was some little time before the visitors had been comfortably positioned in front of the main entrance; but when all were comfortably located, Governor Hartranft, Hon. John Welsh, and several members of the Centennial Board of Finance emerged from the Governor's private apartment and took up a position on the portico. The very presence of this distinguished



BAUGH'S SECTIONAL MILL FOR HARD SUBSTANCES, EXHIBITED IN MACHINERY HALL.

party threw the vast assemblage into a spasm of vociferous applause, which reverberated to the very confines of the International city.

When quiet was restored, the Hon. John Welsh stepped to the front of the portico and introduced Mr. George W. Mears, the President of the Philadelphia Commercial Exchange, who, on behalf of the mercantile bodies of Philadelphia, welcomed

the visitors to the city and the Exhibition. Mr. J. L. N. Stark, President of the New York Produce Exchange, then responded, and Governor Hartranft was called upon, and replied in a few words.

At the conclusion of Governor Hartranft's address the procession was reformed, with the Philadelphia delegation in advance, and headed by McClurg's band, moved down Fountain avenue and across the Horticultural plateau to the Municipal building, where a collation had been prepared for the entertainment of both hosts and guests. Arriving at the drab-colored pavilion, the Philadelphia boards halted and allowed the visiting associations to pass through and enter the building in advance. On account of the rather contracted quarters of the structure erected to represent the city, it was necessary to admit the delegations in tantalizingly small sections, but the bands in attendance enlivened the waiting moments with musical selections, and in a little less than two hours all were bountifully served. The reception here was entirely informal, the members of the various organizations gradually dividing into groups, and sauntering off to view the manifold attractions of the Exhibition. At a little after three o'clock, Governor Hartranft arrived at the Municipal building, but after bowing his acknowledgments to the hearty applause with which he was greeted, retired to an ante-room to rest from the fatigues of the day. An hour later the Governor left the building and took a carriage for the city, and by six o'clock the visiting delegations were all on their way to their homes.

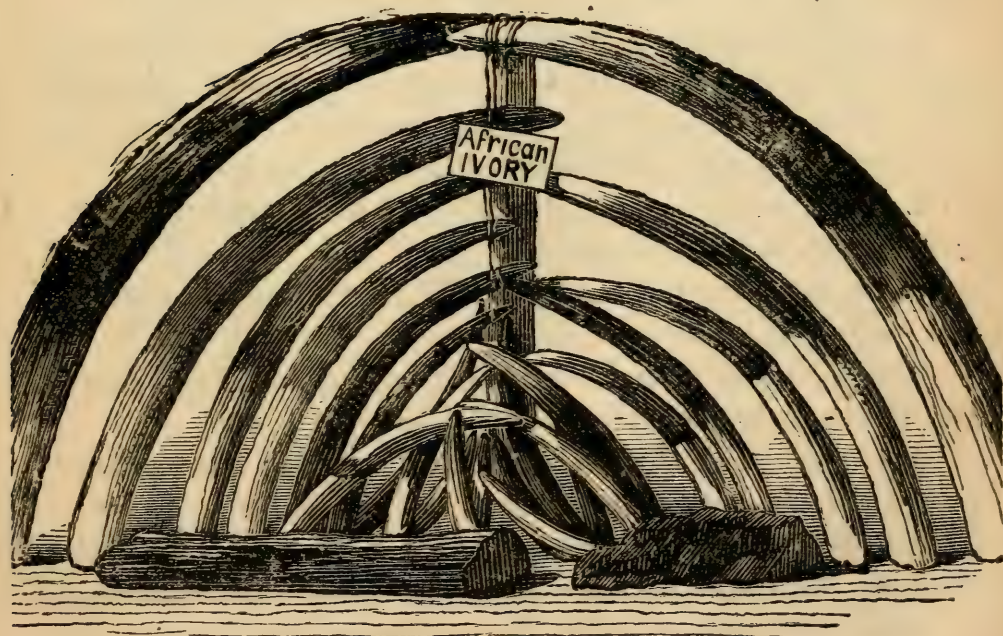
The attendance on the 26th of October was as follows: Cash admissions, 122,300; free, 13,361; total, 135,661. The receipts were \$61,029.50.

Vermont Day.

The 27th of October was observed as Vermont's day. Governor Fairbanks, the chief Magistrate of the State, being unable to attend through illness, deputed ex-Governor John B. Page to represent him. The Vermont State building, which was located on the Avenue of the Republic, just west of the Penn-

sylvania building, was handsomely decorated. At ten o'clock ex-Governor Page held a reception at the State building, which was attended by about two thousand citizens of Vermont. From the State building the guests marched to Judges' Hall, where at eleven o'clock, Hon. Henry Clarke, by appointment of the Governor of Vermont, delivered the formal address. The orator stated that the State was the first to be admitted into the Union formed by the original thirteen, and proceeded to review her history from Colonial days down through the Revolution to the present time.

The attendance during the day was as follows: Cash admissions, 95,553 ; free, 12,517 ; total, 108,080. The receipts were \$47,485.



LIBERIAN IVORY DISPLAY, EXHIBITED IN AGRICULTURAL HALL.

CHAPTER XXV.

THE RECORD OF THE EXHIBITION.

Statement of Leading Events Connected With and Growing Out of the Exhibition.

FOR the convenience of the reader we give here a brief summary of the principal events connected with the six months' career of the great Exhibition.

May 10th, 1876.—The Formal Opening of the Exhibition. The admissions were: Cash, 76,172; free, 110,500.

May 15th.—Opening of the International Billiard Tournament, at Horticultural Hall. This was the most successful affair of its kind ever given, the highest run ever made in one inning (251) being accomplished by William Sexton.

May 16th.—The General Assembly of the United Presbyterian Church met in Philadelphia.

On the same day the Volunteer Firemen's National Convention assembled in the same city.

May 23d.—The Grand Temple of the Order of True Templars of Pennsylvania convened at Philadelphia.

May 24th.—The Judges of Award of the International Centennial Exhibition entered upon their duties.

May 30th.—Formal opening of the Bankers' Centennial Pavilion, in the Exhibition grounds. The ceremonies were elaborate, and were attended by numbers of bankers from all parts of the Union.

May 30th.—Anniversary of the American Sunday-School Union celebrated in Philadelphia.

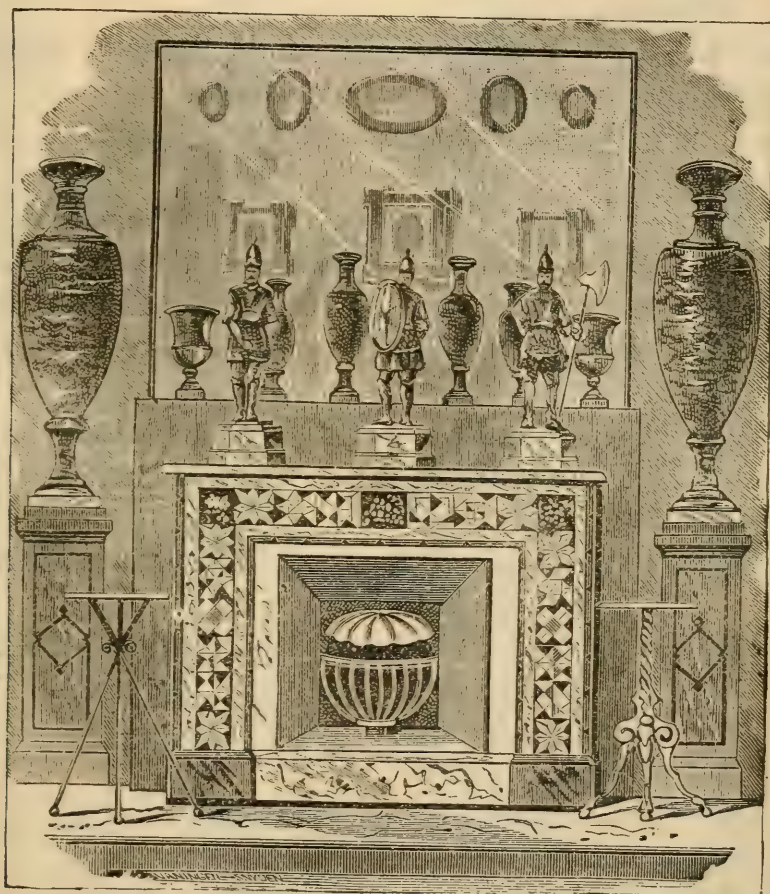
Reunion of the Grand Encampment of Knights Templar

of the United States. Largely attended by knights from all parts of the Union.

Meeting of the American Social Science Association at Philadelphia.

The National Convention of the Baptist Social Unions met at Philadelphia.

May 31st.—Grand Celebration in Philadelphia by the Grand



MALACHITE MANTEL AND ORNAMENTS, EXHIBITED IN THE
RUSSIAN SECTION, MAIN BUILDING.

Commandery of Knights Templar of the State of Pennsylvania.

Meeting of the Pennsylvania State Medical Society at Philadelphia.

June 1st.—Grand Parade of the Knights Templar of the United States. Over 6,000 knights in line.

June 2d.—Visit of the Massachusetts Press Association to the Exhibition.

June 6th.—American Medical Association met at Philadelphia.

June 7th.—Reunion of the Army of the James, held at the Philadelphia Academy of Music.

Opening of the American Brewers' Sixteenth Annual Congress at Mænnerchor Hall.

June 8th.—Reunion of the Society of the Army of the Potomac at the Academy of Music at Philadelphia.

June 10th.—National Convention of Civil Engineers met at Philadelphia.

June 12th.—Meeting of the Association of Superintendents of Asylums and Hospitals for the Insane, at Philadelphia.

Women's National Temperance Union met at Philadelphia.

June 13th.—International Temperance Conference opened at Philadelphia.

Meeting of Good Templars State Lodges at Philadelphia.

June 14th.—National Association of Stove Manufacturers met at Philadelphia.

The National Division of Sons of Temperance of North America began its sessions at Philadelphia.

Ministerial Temperance Conference held at Philadelphia.

June 15th.—Dedication of the Ice Water Temperance Fountain in the Exhibition grounds, by the National Division of Sons of Temperance.

Meeting of the Grand Lodge of Good Templars of the United States, at Philadelphia.

June 20th.—National Convention of Mining Engineers met at Philadelphia.

June 22d.—Meeting of the Manufacturing Chemists' National Association, at Philadelphia.

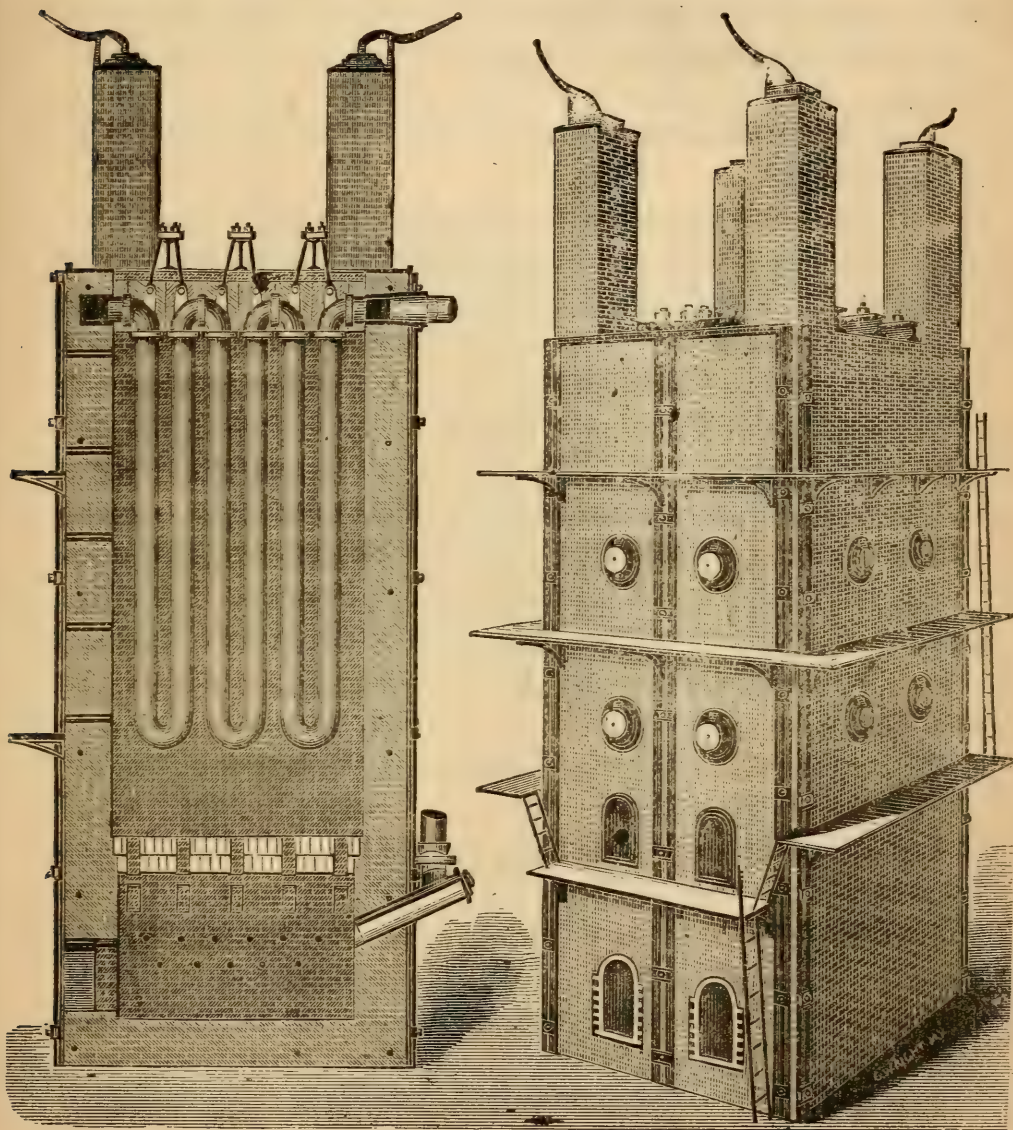
June 24th.—Meeting of the Grand Encampment of the Knights of Malta, at Philadelphia.

June 26th.—Meeting of the National Religious Amendment Association, at Philadelphia.

World's Homœopathic Convention opened at Philadelphia.

Convention of the German Free-Thinkers held at Philadelphia.

June 27th.—Meeting of the National and State Encampments of the Grand Army of the Republic.



WEIMER'S SUSPENDED HOT-BLAST STOVE, EXHIBITED IN MACHINERY HALL.

June 28th.—Meeting of the National Law Congress, at Philadelphia.

Reunion of the 28th and 147th Regiments of Pennsylvania Volunteers and Knapps' Battery, at Philadelphia.

June 30th.—The Ten Days' Encampment of the West Point Cadets in the Exhibition grounds opened.

July 1st.—Congress of Authors held at Independence Hall.

July 2d.—National Convention of Catholic Young Men's Associations held at Philadelphia.

July 3d.—International Typographical Union met at Philadelphia.

Commercial Travellers' Association began its sessions at Philadelphia.

July 4th.—Grand celebration at Philadelphia of the one hundredth anniversary of the Independence of the United States of America. For description of this celebration see Chapter XXI of this work.

Reunion of the Society of the Cincinnati at Philadelphia.

Reunion of the Veterans of the War of 1812-15 at Philadelphia.

The Catholic Total Abstinence Fountain and the Humboldt Monument in the Exhibition grounds formally dedicated.

July 6th.—Meeting of the International Conference of Delegates of the Societies of St. Vincent de Paul, at Philadelphia.

July 11th.—The International Arbitration Convention met at Philadelphia.

July 16th.—Encampment of the Columbus (Ohio) Cadets on the Exhibition grounds.

July 25th.—Pennsylvania State Dental Society met at Philadelphia.

July 28th.—Encampment of Knights Templar at Ridley Park, under the auspices of the Maryland Commandery.

August 1st.—Convention of Antiquarian and Historical Societies met at Philadelphia.

August 7th.—Pennsylvania Militia encamp at Camp Anthony Wayne, in Fairmount Park.

August 11th.—Grand parade and review of the Pennsylvania Militia.

August 15th.—International Chess Tournament held at Philadelphia.

Meeting of the Photographers' National Association, at Philadelphia.

American Association of Instructors of the Blind met at Philadelphia.

Grand Lodge of Knights of Pythias of Pennsylvania met at Philadelphia.

August 16th.—Convention of the Caledonian Club of North America held at Philadelphia.

August 22d.—Opening of the International Rowing Regatta on the Schuylkill. For an account of the Regatta see Chapter XXII.



THE "WARWICK VASE," EXHIBITED BY GALLOWAY & GRAFF, IN THE MAIN BUILDING.

Supreme Lodge of the Knights of Pythias assembles at Philadelphia. Grand parade of the Order.

August 24th.—New Jersey Day. Paid admissions, 56,325; total, 67,052. Receipts, \$28,063.75.

August 28th.—Reunion and parade of Swiss Citizens of the United States at the Exhibition grounds.

September 1st.—Opening of the Live-Stock Displays of the Centennial Exhibition. The Horse Show begun.

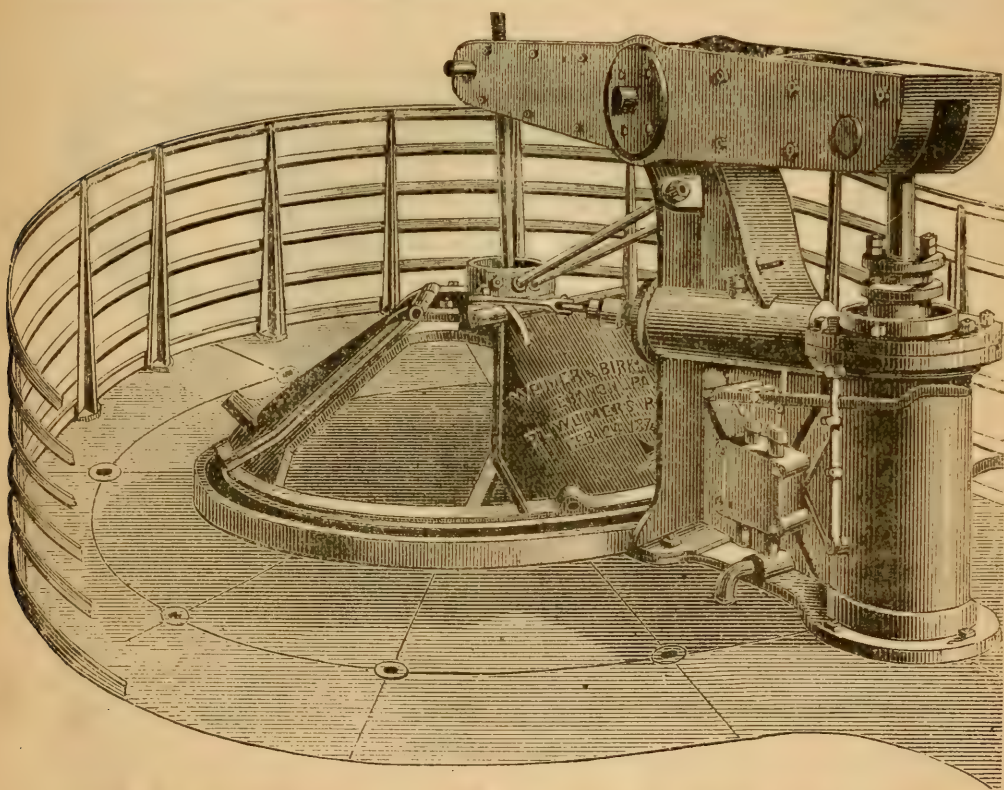
September 2d.—Encampment of the Connecticut Militia near the Exhibition grounds.

September 4th.—Meeting of the International Medical Congress at Philadelphia.

International Convention of Archæologists met at Philadelphia.

September 6th.—Parade of the Volunteer Firemen of Philadelphia.

September 7th.—Connecticut Day. Cash admissions, 64,059; total, 75,044. Receipts, \$30,853.75.



WEIMER & BIRKENBINE'S FURNACE CHARGER, EXHIBITED IN MACHINERY HALL.

September 9th.—Meeting of the California Pioneer Society at Philadelphia.

September 11th.—Meeting of the National Pomological Society at Philadelphia.

September 12th.—Grand Council of the Improved Order of Red Men held at Philadelphia.

September 13th.—National Convention of American Foresters held at Philadelphia.

September 14th.—Massachusetts Day. Cash admissions, 85,-795; total, 97,868. Receipts, \$41,193.

September 19th.—Grand Lodge of the Independent Order of Odd Fellows met at Philadelphia.

September 20th.—Parade of the Grand Lodge of Odd Fellows at Philadelphia.

September 21st.—New York Day. Cash admissions, 122,003; total, 134,-588. Receipts, \$59,986.

September 23d.—Convention of Aperians (honey-raisers) held at Philadelphia.

Welsh National Eistedfodd in session at Philadelphia.

National Carriage Builders' Association in session at Philadelphia.

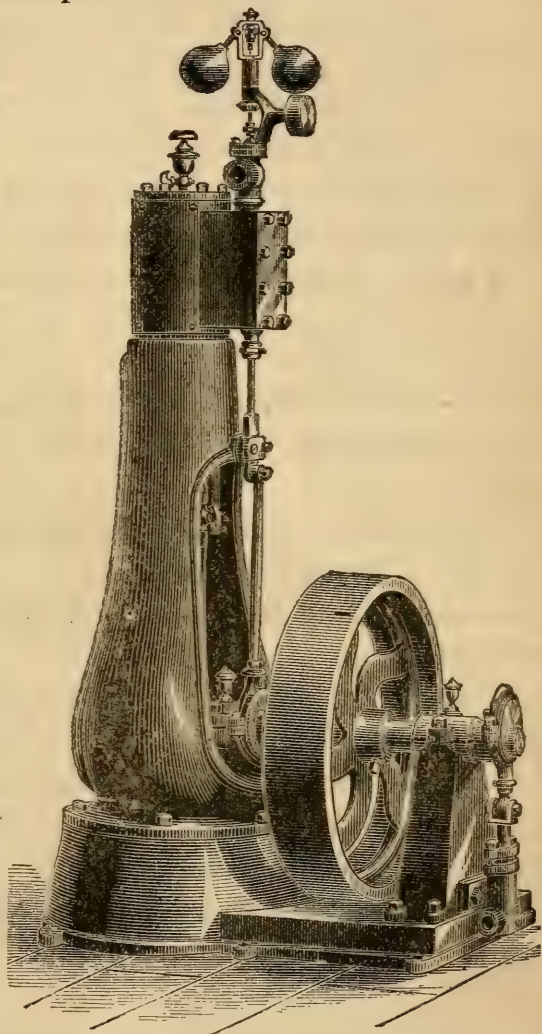
September 27th.—Formal announcement of Awards by the Centennial Commission at Judges' Hall.

September 28th.—Pennsylvania Day. Cash admissions, 257,168; total,

274,919. Receipts, \$118,-673.75. Grand display of fireworks at night in the Exhibition grounds.

October 4th.—Dedication of the Hall of the Patriotic Sons of America at Philadelphia.

Conference of Librarians of the United States in session at Philadelphia.



THE TWISS VERTICAL ENGINE, EXHIBITED IN
MACHINERY HALL.

October 5th.—Rhode Island Day. Cash admissions, 89,060; total, 100,946. Receipts, \$44,496.

October 12th.—New Hampshire Day. Cash admissions, 101,541; total, 118,422. Receipts, \$50,536.

The Columbus Statue in the Exhibition grounds dedicated by the Italian Societies of the United States.

October 13th.—Cadets of the Virginia Military Institute encamp on the Exhibition grounds.

October 17th.—State Council of the Order of United American Mechanics met at Philadelphia.

American Dairymen's Association met at Philadelphia.

October 18th.—Grand display of fireworks in the Exhibition grounds at night.

October 19th.—Delaware, Maryland and West Virginia Day. Cash admissions, 161,355; total, 176,407. Receipts, \$80,367.50.

October 26th.—Ohio Day. Cash admissions, 122,300; total, 135,661. Receipts, \$61,029.50.

Reunion of the Merchants at Judges' Hall, in the Exhibition grounds.

November 2d.—Bishop Allen's monument in the Exhibition grounds dedicated.

November 9th.—Farewell reception and banquet by the Centennial Commission and Board of Finance. Grand International display of fireworks at night.

November 10th.—Formal close of the International Centennial Exhibition.

CHAPTER XXVI.

THE ANNOUNCEMENT OF THE AWARDS.

Ceremonies at Judges' Hall—Announcement of the Awards granted by the Commission—Character of the Awards—Description of the Medals—List of the Principal Awards in Each Class.

THE awards of medals and diplomas to successful competitors in the Centennial Exhibition were announced in Judges' Hall with appropriate ceremonies on the evening of the 27th of September. No event during the course of the Exhibition was looked forward to with as much interest by the exhibitors as this one. At times many of them were impatient at the unavoidable delays and disposed to murmur at the management of this important branch of the work; but the manner in which the judges performed their duties, the discrimination with which their reports were prepared, and the enhanced value of their awards over those made at any former International Exhibition, finally caused all dissatisfaction to disappear. Gratification at the success of the new American system of awards was universal. Judges' Hall was beautifully decorated for the occasion. Partitions had been removed, greatly enlarging the seating capacity of the room and adding greatly to its beauty. The flags of the leading nations of the world were arranged in festoons around the galleries, and curious lanterns from the Chinese department were suspended between the columns. The rostrum in the rear of the platform was covered with flowers and rare plants, over which there was a canopy of American flags. Marble statues were placed in the corners of the room, vases from the Main Building in the corridor, and one of the century vases in silver in the open space in front of the platform.

General Lewis E. Merrill, U. S. A., acted as master of ceremonies, and announced as they entered the following-named bodies of gentlemen: The Centennial Commission, the Board of Finance, and the United States Government Board; General Walker, Chief of the Bureau of Awards and the Board of Judges; the Director-General of the Exhibition and the Foreign Commissioners; the officers of the Centennial Guard,

the Presidents of the Centennial Commission and the Board of Finance, and the Governors of States and the Diplomatic Corps. After these had all passed to the places assigned them, prayer was offered by the Rev. Dr. Henry A. Boardman, of Philadelphia, in response to which the Temple Quartette of Boston sang a selection from Schubert's Mass for male voices.

United States Commissioner Daniel J. Morrell, who presided, then made a short address.

The music which followed consisted of selections from the national airs of many countries, performed by the Centennial orchestra. As the music of each nation was recognized the audience rose to



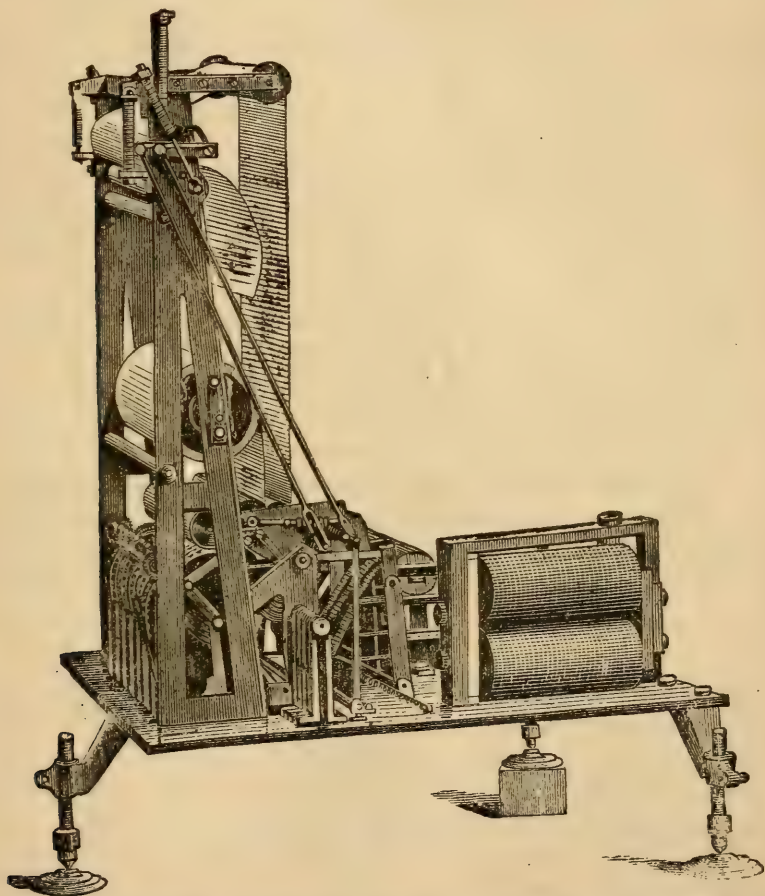
TERRA-COTTA VASE, EXHIBITED BY GALLOWAY & GRAFF, IN THE MAIN BUILDING.

its feet in honor of the country thus represented, and the airs of France, England, and Germany were loudly applauded.

Director-General A. T. Goshorn then delivered a short ad-

dress. His allusions to the Foreign Commissioners and the Board of Judges were received with warm applause. He said in substance as follows :

This Exhibition is not a new competition of rival manufacturers and tradesmen. It brings together nationalities and leads to extended relations ; promotes the acquisition and diffusion of a better knowledge of national resources and products, and of national methods and industries. It creates and enlarges mutual respect and esteem, softens prejudices, and contributes to the preserva-



THEORELL'S PRINTING METEOROGRAPH, EXHIBITED IN THE SWEDISH SCHOOL-HOUSE.

tion of harmony and peace—the noblest aim of civilization. The benefits of this assembling of the representatives of every civilized country with their products will be better understood and more fully appreciated after the Exhibition itself has passed away. We are in the presence of the productions of science, art, invention, skill, and labor, fitted to improve the material and moral condition of man. We are at the same time in the presence of higher influences. The united attention and thought of many leading minds of the

civilized world, for the time being, centre here, and, by their representatives, preside over this institution; opinions of many and diverse minds thus in contact become by attrition and discussion more developed and perfected in themselves, and in turn flow back through the various channels to reanimate and quicken the sources of their origin. We learn here what science and art have done for the comfort and elevation of man, and are reminded that the discoveries and inventions during the era which this Exhibition commemorates are the most remarkable and useful recorded in history.

No feature in this enterprise has produced a more profound impression than the individual character and qualifications of the gentlemen selected for these commissions, and who are intrusted with most delicate and difficult duties. In addition to the required knowledge and experience, they have displayed calm consideration and forbearance, vigilant attention, and the most friendly and lively zeal for the success of the work. It is, therefore, gentlemen of the foreign commissions, that I seize this opportunity for my associates and myself, and on behalf of the exhibitors from the United States, to express to you with the warmest feelings the high sense we entertain of your important services and the large degree in which we are indebted to you for the measure of success which has crowned our efforts.

With equal earnestness and sincerity and pleasure I refer to the eminent body of men, both foreign and American, combining among them superior attainments in every department of human knowledge, selected to examine and express their opinions upon the qualities and merits of the products and subjects forming this Exhibition. The task imposed on them was in some of its features new and untried. They were desired to express opinions individually and in writing upon the qualities and merits of individual products, and to affirm their opinions by their respective signatures. Most obviously this was asking the performance of a task at once difficult and delicate, and the assumption of great responsibility. The good-will, earnestness, and zeal with which they accepted this onerous charge and entered upon the work gave assurances to the Centennial Commission that have been to them a source of gratification and of confidence. Their work is now completed and will soon be given to the public, which is in the end the final arbiter and ultimate judge. It is not competent for me to anticipate that verdict, but I may allude to some of the elements on which it must of necessity be founded.

It has been the duty of the Centennial Commission to examine, appreciate, and confirm in legal form 12,000 or more of the recommendations of the judges for awards. In the progress of this labor, the commission have been impressed with the spirit of impartiality, fairness, and earnestness which pervades the work. They have been equally impressed with the evidences of trained skill and acute discrimination and with the manifestations of special and general knowledge throughout. Surely it cannot fail that the people and nations represented here will in due time acquire, from the useful and reliable information conveyed by the reports of the judges, a better and fuller knowledge of their own products and of the products of each other. In the full confidence that the wishes and aims of the Centennial Commission in adopting

this method of awards will be thus happily realized and appreciated both by exhibitors and the public, I have now the honor to express to you, gentlemen of the Board of Judges, on behalf of the Centennial Commission, our thanks for the signal aid and great benefits in this department, which you have conferred on the exhibitors.

And now, gentlemen, in a few weeks the object for which we came here will be accomplished. The Exhibition, which has been the source of so much pleasure and instruction, and which has excited the admiration of millions of visitors, will soon pass into the records of history. The circumstances that suggested it were of a peculiar and interesting character. Connected with the centenary commemoration of one of the most important political events in the history of the world, and from its inception having been free from merely commercial or mercenary motives, it was organized and has been conducted with the single view of erecting a monument dedicated to the fruits of peace, that will be remembered for all time with pride and pleasure. Inaugurated in a spirit of fraternity and good-will, it was intended to afford to the people of this country and all other countries an opportunity to see and study the elements that have conduced to the national welfare. We acknowledge our indebtedness to the exhibitors from foreign countries, and to the exhibitors from the United States who have co-operated with zeal and most faithfully to render the Exhibition successful in all of its departments. The work has been great—the difficulties many—but we trust the future will bring returns of a fruitful harvest.

After the singing of a quartet from “*Les Enfants de Paris*” by Adolphe Adams, General Hawley briefly explained the work of the Judges and of the Centennial Commission in preparing the awards, as follows:

GENTLEMEN: We have reached another interesting step in the progress of the International Exhibition of 1876. The importance of the work which culminates this evening has been felt by the Commission from the beginning. It has never been thought possible to devise or carry out a system of award that would render absolute justice, or obviate criticism; but it was believed that we could, by the plan with which you are familiar, get nearer that result than did our predecessors in other exhibitions.

We departed from the usual system of international juries and called to our assistance 125 judges from the United States, and an equal number from foreign nations, all selected for their known character and qualifications. Our method also dispensed with graduated medals. It required written reports recommending awards based upon merit, the elements of merits, in the language of the Commission, including “considerations relating to originality, invention, discovery, utility, quality, skill, workmanship, fitness for the purpose intended, adaptation to public wants, economy and cost.” The articles exhibited were classified in twenty-eight groups, and to each of these groups a competent number of judges, foreign and American, was assigned. They entered upon their

duties May 24. Each group chose a president and secretary, and called to its aid such reporters and experts as were needed.

The rules required that the report upon each article or subject should be signed by some one judge and countersigned by at least a majority of his associates in that group. No limitation has been imposed upon the number of the awards. It is apparent that of twenty articles submitted, each might be worthy of honor for the peculiar merit, or, on the other hand, it might happen that none would deserve special mention.

The Chief of the Bureau of Awards, General F. A. Walker, represented the Commission in its relations with the judges, interpreting and applying the rules and conveying the decisions of the Commission upon questions that arose from time to time. He classified the reports and prepared them for considera-



MAMMOTH CALIFORNIA GRAPE VINE, IN AGRICULTURAL HALL.

tion by the Commission. That body has read every one of the reports either in committee of the whole or in large sub-divisions thereof. The task is not quite complete, a few reports are not ready for our examination. Final action upon others is delayed by reason of such oversights, alleged violations of the rules, duplications, overlappings, or technical error as may be expected in so large a mass of work by 250 gentlemen working in twenty-eight groups. The Commission has formally approved reports and awarded thereon its uniform medal and diploma. The lists of awards that we present this evening are classified by nationalities. The lists given to the press are arranged under their several groups. The preparation of diplomas, medals, and certified copies of the full reports in each case must necessarily be a work of more time. It was deemed just to the exhibitors to announce the principal fact as speedily as possible.

Among the many to whom we feel personally grateful stand prominently the tens of thousands of exhibitors. While commercial and purely material motives and considerations are appealed to in order to induce their participation, it is quite evident that a large number are here on the occasion somewhat peculiar, not alone from the United States, but from many nations, chiefly that they may testify their good-will in our festival year in the country [loud applause]; and there are many purely governmental exhibits to competitive examination that will nevertheless receive the highest of awards, the continuing gratitude of the whole American people. The special manifestations of friendly interest and cordial good-will presented by many sovereigns can never be forgotten, and they will do much to perpetuate international friendships. [Applause.]

As the names of the several countries were called and their representatives came forward to receive their lists they were greeted with loud applause. Especially was this true in the cases of Brazil, Egypt, France, Germany, Japan, Russia, Turkey, Great Britain and Victoria, and the United States. In some instances the whole audience rose to its feet, and the slapping of hands and shouts of "Bravo" continued for several seconds. The exercises of the evening were closed by the singing of Dudley Buck's Serenade by the Temple Quartette Club and Music by the First Brigade Band.

The method of awards adopted by the American Centennial Commission differs from the preceding systems. It dispenses with the international jury, and substitutes a body of judges, one-half foreign, chosen individually for their high qualifications. It dispenses also with the system of awards by graduated medals, and requires of the judges written reports on the inherent and comparative merits of each product thought worthy of an award, setting forth the properties and qualities, presenting the considerations forming the grounds of the award, and avouching each report by the signature of their authors. Thus the volumes of reports will form a complete encyclopædia of the Exhibition, which can be consulted on all disputed questions as to the relative merits of objects of like character, and will be an authority to settle the quarrels of rival manufacturers and inventors about the value of their premiums.

The medals awarded by the Commission were of bronze, round in shape, four inches in diameter, very chaste in appearance, and the largest of the kind ever struck in the United

States. The stamps were engraved by Henry Mitchell, of Boston, and the medals were struck at the United States Mint at Philadelphia. In the centre of the face is a female figure, representing America, seated on an elevation, and holding a crown of laurels over the emblems of industry that lie at her feet. At equal distances apart on the outside zone of the face



CENTENNIAL AWARD MEDAL—(OBSERVE).

are four other female figures in bas-relief, which with appropriate symbols represent America, Europe, Asia, and Africa, respectively. The reverse side has in the centre the words: "Awarded by the United States Centennial Commission," and, on the outside zone: "International Exhibition at Philadelphia. MDCCCLXXVI"—all in raised letters. The zone

on each face is separated from the inner area by a wreath of laurels.

All the medals of award were of the same size, weight, material, and design. About twelve thousand were presented to deserving exhibitors.

The list given below embraces but a small portion of the



CENTENNIAL AWARD MEDAL—(REVERSE).

awards granted by the Centennial Commission. A complete list would more than fill a volume of the size of this one, and the list would be made up largely of the names of exhibitors from foreign countries, in which American readers would have no special interest. It is to be understood that these awards of medals are evidences merely of merit, not

superiority; the reports made subsequently indicate whose exhibit in each group is held in highest esteem by the judges.

Group I.—The First Group embraced every character of mineral ores and combustibles, metals and metallurgical products, and the various tools and apparatus for mining. No less than 616 awards were made. Among the American exhibitors were the following:

Coffin, Redington & Co., New York, Fine Silica for Polishing.

E. D. Dougherty, Tennessee, Colored Marble.

Gilson, Clement & Woodpin, Rutland, Vermont, Statuary Marble.

Anthracite Fuel Company, Rondout, New York, Compressed Coal.

Albany and Rensselaer Iron and Steel Company, Troy, New York, Bessemer Steel and Wrought Iron Rails, Bars, Forgings, Axles, Spikes, Nails, and Horseshoes.

Lackawanna Iron and Coal Company, Scranton, Pennsylvania, Bessemer Pig Iron and Wrought Iron Bars.

James C. Jackson, New York, Exhibit of Castings made by novel methods.

Tatham & Brother, Philadelphia, Pennsylvania, Sheet Lead and Tin-lined Lead and Iron Pipes.

Edwin P. Ball, Chicopee, Massachusetts, Steam Stamping Machine for Crushing Ores and Rocks.

J. E. Mitchell, Philadelphia, Pennsylvania, Grindstones and Fixtures.

Sheldon & Slosson, West Rutland, Vermont, Block of Statuary Marble.

M. M. Manly & Son, Pennsylvania Rolled Iron Hand Rail.

Madison County Pottery Company, Richmond, Kentucky, Pottery.

George M. Mowbray, North Adams, Massachusetts, Apparatus for Blasting Mines, Electric Battery, Fuses, etc.

George K. Tyson, Philadelphia, Pennsylvania, Phosphor-Bronze.

Hastings & Co., Philadelphia, Pennsylvania, Gold Leaf and Dental Foil.

Yale Lock Manufacturing Company, Stamford, Connecticut, Nickel Anodes.

Philadelphia and Reading Railroad Company, Reading, Pennsylvania, Iron Rails and Rail Piles.

Group II.—Medals were bestowed upon 285 exhibitors in the Second Group, which embraced all articles of pottery, glass-ware, artificial stone, brick, terra-cotta work, tiles for roofing or pavement, majolica, and pallsissey ware, porcelain for the table, window, mirror, and table glass, and machinery for making all such articles. Among the exhibitors on the list of awards are the following:

Galloway & Graff, Philadelphia, Pennsylvania, Artistic Terra-Cotta.

Joseph H. Moore, Trenton, New Jersey, White Granite Table Wares, Bisquit and Parian.

Boston and Sandwich Glass Company, Boston, Flint Glass Table Wares, etc.
H. C. Fox & Sons, Philadelphia, Druggists' and Perfumers' Glass Wares.

Homer Brooke, New York, Presses for Glass.

The Brick Enamelling Company, Philadelphia, Enamelled Brick, in a variety of colors.

Wm. Chambers, Philadelphia, Brick-making Machine—operates by expressing the Clay.

The Fire Proof Building Company, New York City, Fire Proof Hollow Block of Teil Lime Composition for Building Purposes.

J. Goebel & Co., New York City, Crude and Burned German Clay, and Glass-melting Pots made from same.

Roland & Sprogle, New York City, Artificial Carburetted Stone.

J. B. Dobleman, Greenpoint Flint Works, Brooklyn, New York, Flint Glass Table Wares, etc.

Whitall, Tatum & Co., Philadelphia, Chemists', Druggists' and Perfumers' Wares of Lime and Green Glass.

Group III.—The Third Group embraced chemicals and pharmaceutical preparations, and the apparatus for manufacturing them, and 748 exhibitors received medals. Of these the most noticeable houses in the list are given below :

E. B. Benjamin, New York, Chemicals and Chemical Apparatus.

Averill Chemical Paint Company, New York, Ready Prepared Paints.

Brooklyn White Lead Company, New York, Lead Colors.

Joseph Burnett & Co., Boston, Cologne, Flavor Extracts, etc.

Colgate & Co., New York, Fancy Soaps and Perfumery.

Francis & Loutrel, New York, Copyable Printing Ink.

Lockwood, Brooks & Co., Boston, Inks and Mucilage.

Henry Maillard, New York, Confectionery.

George Mather & Sons, New York, Printing Inks.

Maynard & Noyes, Boston, Inks.

McKeone, Van Haagen & Co., Philadelphia, Soaps.

Enoch Morgan & Son, New York, Sapolio Soap.

Charles Pfizer & Co., New York, Chemicals.

Restdorff, Bettman & Co., New York, Dressings for Ladies' Shoes.

Robinson & Pratt, Philadelphia, Printing Inks, etc.

Crosse & Blackwell, London, Vinegar.

T. W. Masury & Son, New York, Colors.

T. & E. Atkinson, London, Perfumery and Toilet Soaps.

Group IV.—Group IV. included animal and vegetable products, such as milk, cream, butter, cheese, honey, flour, starch, wines, malt liquors, etc., and the machinery for their prepara-

tion. The awards number 1,129, two-thirds of them being to foreign exhibitors. Of the American exhibitors the following received medals:

American Condensed Milk Company, New York, Condensed Milk.
 T. Kingsford & Son, Oswego, New York, Starch.
 William Barnett, Philadelphia, Starch.
 Glen Cove Starch Company, Long Island, Starch.
 J. J. Wood & Co., United States, Columbus, Ohio, Starch.
 E. T. Cowdery & Co., Boston, Mixed Pickles, Gerkins, Catsups.
 P. Lorillard & Co., New York, Tobacco in all its forms (except cigars).
 L. Schepp, New York, Desiccated Cocoanut, Preserved Fruit.
 E. C. Hazard & Co., New York, Preserved Vegetables.
 George V. Hecker & Co., New York, Flour from Winter Wheat.
 Rumford Chemical Works, Providence, Rhode Island, Baking Powder.
 John G. Borden, Brewster's, New York, Preserved Extracts.
 E. C. Hazard & Co., New York, Preserved Extracts.
 Gordon & Gilworth, New York, Preserved Extracts.
 Crosse & Blackwell, London, England, Pickles, Sauces, and Preserved Fruit.

Group V.—Group V. was devoted to the display of fish and fish products, and apparatus for fishing, fish culture, etc. The awards are incomplete, but number 229, very few of which are to American exhibitors. Among those named are the following:

Mrs. J. H. Slack, Bloomsbury, New Jersey, Combination Hatching-Boxes.
 C. F. Orvis & Co., Manchester, Vermont, the Orvis Reel.
 A. B. Shipley & Sons, Philadelphia, Artificial Flies, Rods, Reels, etc.
 Conroy, Bassett & Malleson, New York, Artificial Flies, Bass Lines, Fine Rods, etc.
 American Net and Twine Company, Boston and New York, Trammel Nets, Gill Nets, Purse Nets, and Lines.
 W. R. Lewis & Bros., Boston, Canned Salmon, Mackerel, Lobster, and Clams.
 Max Ams, New York, Pickled Eels, Caviar, Pickled Salmon, Anchovies, etc.
 J. W. Carley, New York, Preserved Oysters, specimens of Oysters and Clams.
 Eugene G. Blackford, New York, Live Fish in Aquaria, with Fish in Refrigerators.
 Kemp, Day & Co., New York, Canned Lobsters, Mackerel, etc.
 John Winslow Jones, Portland, Me., Fresh Mackerel and Canned Lobster.
 Joseph F. Tobin, New York, Whalebone.
 Hapgood & Co., San Francisco, Canned Salmon.



TERRA-COTTA VASE, EXHIBITED BY GALLOWAY & GRAFF, IN THE
MAIN BUILDING.

Educational Department, Ontario, Canada, Prepared Fish.

General Collection of Bermuda, Bermuda Fish, alive, including Parrot Fish.

General Exhibit of Bermuda, Shells, Corals, Sponges, Sea Fans, Echinoderms, etc.

Brazilian Commission, Turtle Oil and Turtle Butter.

Museum of Bergen, Norway, Collection of Mammals, Fishes, Crustaceans, etc.

Board of Commerce, Bergen, Norway, Salted Herring and Cod, Cod Roes, Ling Cask.

Fabrica Progressa, Povora de Varim, Portugal, Conger Eel in Oil, Oysters in Oil, Shad in Oil.

Board of Commerce, Alesund, Norway, Fishing Tackle, Lines, Nets, etc.

President Vienna Commission, Vienna del Castello, Portugal, Lamprey in Oil.

Royal Swedish Commission, Blekinger, Salted Gotland Herring, Eels, do. Cod, etc.

Commissioners from Tasmania, Brown Trout.

Gloucester Fishing Exhibit, Gloucester, Massachusetts, General Collection of Fishing Implements, Models of Boats.

Massachusetts Marine Exhibition, Boats for Fishermen and Fishing Vessels.

Maryland Centennial Commission, Maryland, Model of Fish-Hatching House, Models of Boats, etc., etc.

C. C. Brand, Norwich, Connecticut, Whaling Gun with Bomb Projectile.

E. B. and T. Macy, New Bedford, Massachusetts, Whaling Gear.

Wilcox, Crittenden & Co., Middletown, Connecticut, Fishing Boat, Fittings, etc.

Bradford & Anthony, Boston, Massachusetts, Anglers' Implements, Hooks, etc.

A. Voss, Gloucester, Massachusetts, Bait Mill.

Kelsey & Hosmer, Sandusky, Ohio, Fishing Dressing Machine.

White Manufacturing Company, Bridgeport, Connecticut, Fishing Lamps.

Jonathan Buck, Gloucester, Massachusetts, Fisherman's Clothing.

J. F. Carter, Gloucester, Massachusetts, Fisherman's Oil Clothing.

Thaddeus Norris, Philadelphia, Fishing Rods.

Alden Sea Food Company, New York, Dried Turtle, Dried Cod, Dried Clams.

Group VI.—Under this head were exhibits of timber, worked timber, parts of buildings, forestry, ship timber, seeds, nuts, etc. The awards numbered 150, of which the following are the most noticeable :

Peter Henderson & Co., New York, Field and Garden Seeds.

James M. Thorburn & Co., New York, Garden Seeds and Tree Seeds.

A. L. Fanchese & Co., New York, Marble Mantels.

Fisher & Bird, New York, Marble Mantels.

Group VII.—Furniture, upholstery, wooden-ware, baskets, mirrors, washing-machines, and like articles were embraced in the seventh group. The awards numbered 307. The following American houses among many others received medals :

Charles Zinn & Co., New York, Basket and Willow-Ware.

Peter C. Doremus, New York, Sofa Spring-Bed and Lounge.

Demorest, Joyce & Co., Brooklyn, New York, Opera Chairs.

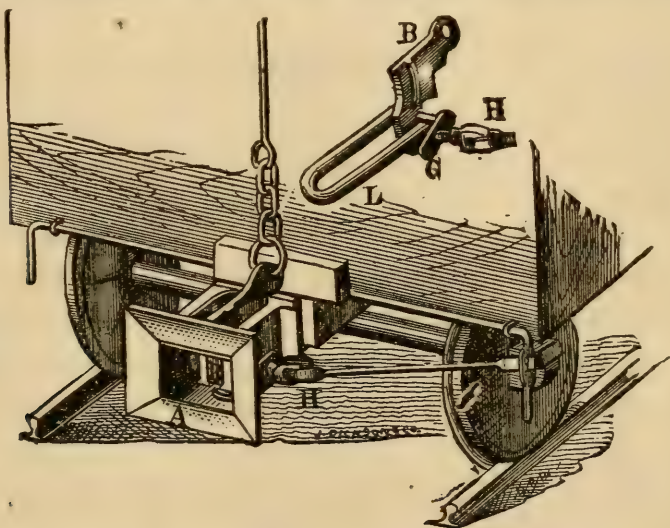
Adolph Thiery, Philadelphia, Mantel and Pier Mirrors, Chairs, etc.

Hertz & Co., New York, a completely furnished Bed-room, comprising rich Maple, Mahogany, and Amaranth Bedstead, etc.

The Hartford Woven Wire Mattress Company, Hartford, Connecticut, Woven Wire Mattresses, etc.

Reed & Barton, Taunton, Massachusetts, Casket Trimmings.

Wakefield Rattan Company, Boston, Massachusetts, Rattan Furniture.



PATENT CAR COUPLER, EXHIBITED IN MACHINERY HALL.

Group VIII.—In Group VIII. were embraced cotton, linen and other fabrics, including the materials and the machinery, and of these there were sixteen different classes. The awards number 384, including the following :

H. W. Johns, New York, Asbestos Fibre and Fabric.

Woven Wire Mattress Company, Hartford, Connecticut, Wire Mattresses.

Wakefield Rattan Company, Wakefield, Massachusetts, Rattan Goods.

American Linoleum Manufacturing Company, New York, Linoleum Floor Cloths.

Group IX.—In this group were exhibits of wool and silk fabrics, including the materials and the machinery, woven and

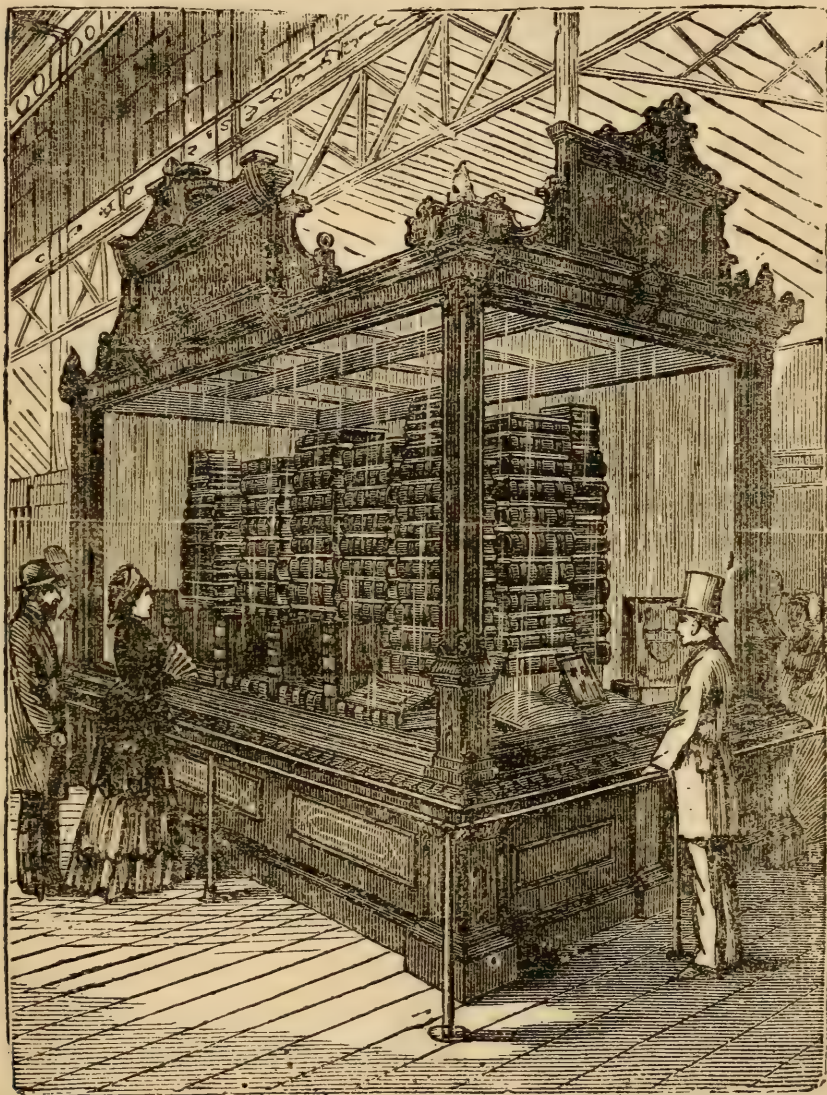
felted goods of wool, and mixtures of wool. The awards numbered 595, from which list the following American exhibitors have been selected :

- M. A. Furbush & Sons, Philadelphia, Carding Machine.
- Jesse Eddy's Sons, Fall River, Massachusetts, Fancy Cassimeres.
- John and James Dobson, Philadelphia, Carpets, Blankets, Overcoatings.
- George H. Gilbert Manufacturing Company, Ware, Massachusetts, Flannels, Blankets.
- American Silk Label Company, New York, Silk Labels.
- George Crompton, Worcester, Massachusetts, Looms.
- Danforth Locomotive and Machine Works, Paterson, New Jersey, Silk Machine.
- James Roy & Co., West Troy, New York, Shawls.
- John Bromley & Sons, Philadelphia, Pennsylvania, Carpets.
- United States Bunting Company, Lowell, Massachusetts, Woollen Bunting Damasks.
- W. H. Horstmann & Sons, Philadelphia, Pennsylvania, Dress, Carriage and Upholstery Trimmings.
- B. B. Tilt & Son, Paterson, New Jersey, Figured Silk and Silk Looms.
- John N. Stearns & Co., New York, Figured and Twilled Silks.
- Dexter, Lambert & Co., New York, Silk Goods.
- Cheney Bros., Hartford, Connecticut, Silks and Silk Ribbons.

Group X.—Group X. embraced all articles of clothing, furs, india-rubber goods, ornaments and fancy articles, and the awards made number 537, the larger part of which went to foreign exhibitors. Of the American exhibitors the most notable were as follows:

- W. A. Drown & Co., Philadelphia, Pennsylvania, Umbrellas and Parasols.
- Celluloid Manufacturing Company, Newark, New Jersey, Brushes, Jewelry, etc.
- Althof, Bergmann & Co., New York, Mechanical Toys.
- Fred. Julius Kaldenburg, New York, Pipes.
- F. Grote & Co., New York, Turned Ivory, etc.
- Schuyler, Hartley & Graham, New York, Military Hats and Caps.
- Schuyler, Hartley & Graham, New York City, Society Goods.
- New York Belting and Packing Company, New York City, Emery Vulcanite.
- John Wanamaker & Co., Philadelphia, Pennsylvania, Civil and Military Clothing.
- Devlin & Co., New York City, Civil and Military Clothing.
- Madam Demarest, New York City, Fashions, Paper Patterns, Dress-Cutting System, and Shirt and Stocking Suspenders.
- Goodyear Rubber Company, New York, Rubber Goods.

Group XI.—Included in Group XI. were all articles of jewelry, watches, silverware, bronzes. The exhibitors numbered only 150, of whom only twenty-six were Americans. Of these



BLANK BOOKS, EXHIBITED BY W. F. MURPHY'S SONS, PHILADELPHIA, IN THE MAIN BUILDING.

the principal ones receiving the recognition of a medal were as follows:

Mitchell, Vance & Co., New York, Bronze, Marble, Zinc, and Imitation of Bronze.

Gorham Manufacturing Company, Providence, Rhode Island, Silverware.

Gorham Manufacturing Company, Providence, Rhode Island, The Century Vase, in Solid Silver.

Tiffany & Co., New York, Jewelry and Jewelled Watches, Silver Work.

Robbins & Appleton, New York, Gold and Silver Watch Cases.

Reed & Barton, Taunton, Massachusetts, Silver-Plated Goods.

Reed & Barton, Taunton, Massachusetts, a large Nickel-Plated Vase.

Group XII.—"Leather and manufactures of leather, including boots and shoes, trunks," etc., were the class of articles exhibited as Group XII. The awards announced to-day number 215, almost wholly to American exhibitors, the principal of whom are given below :

Dana, Moffet & Co., New York, Harness and Russet Leather in Variety.
S. Halsey & Son, Newark, New Jersey, Patent and Carriage Leather, and one Hide of Oil-Top Leather.

Henry G. Ely & Co., New York, Buff, Pebbled, Glazed, and Split Leather.

Hubner & Keller, New York, Oak-Tanned Calf Skins.

Kees & Thorne, New York, Hemlock Sole Leather.

Chatfield, Underwood & Co., New York, Belt Leather.

W. F. Breed, Dole & Co., Lynn, Massachusetts, Shoes, Slippers and Gaiters.

Barrous & Boyd, New York, Shoes and Slippers.

J. G. Bruzzell & Co., Lynn, Massachusetts, Shoe Machinery.

Edwin C. Burt, New York, Ladies' Fine Made Shoes.

Schultz, Southwick & Co., New York, Union Crop Sole Leather.

Hoyt Brothers, New York, Hemlock Sole Leather.

American Cable Screw Wire Company, New York, Standard Screw Wire Machine, for Uniting the Soles to the Uppers of Boots and Shoes.

Bay State Shoe and Leather Company, New York, Men's, etc., Women's, etc., Boots and Shoes, Sewed, Pegged, etc.

Dawley & Derby, New York, Lasts, Boot Trees, etc.

Kenny & McPartland, New York, Shoes.

E. B. Stimpson, New York, Shoe Machinery.

Group XIII.—The paper industry was exhibited as Group XIII., and embraced such manufactures as stationery, printing paper, blank books, playing cards, wall paper, etc., besides the machinery and apparatus for printing, such as printing presses, type-casting machines, stereotyping apparatus, book-binding and envelope machines, etc. The awards numbered 239. The chief exhibitors to whom awards were announced to-day are the following :

Tiffany & Co., New York city, Wedding Stationery.

Esterbrook Steel Pen Company, Camden, New Jersey, Steel Pens.

Porter & Bainbridge, New York city, Visiting and Wedding Cards and Papeteries.

Hoe & Co., New York, General Exhibit of Printers' Presses, and Materials for Printers' Use.

J. B. Lippincott & Co., Philadelphia, Bookbinding and Printing.

H. O. Houghton & Co., Riverside Press, Cambridge, Massachusetts, Bookbinding.

D. Appleton & Co., New York, Bookbinding.

B. O. Woods & Co., Boston, Massachusetts, Amateur Printing Presses.

Porter & Coates, Philadelphia, Pennsylvania, Books.

J. R. Osgood & Co., Boston, Massachusetts, Books.

Scribner, Armstrong & Co., New York, Books.

G. P. Putnam & Sons, New York, Books.

Harper Brothers, New York, Books.

Francis & Loutrel, New York, Blank Books.

R. Hoe & Co., New York, Newspaper Press.



THE AQUARIA, AGRICULTURAL HALL.

Group XIV.—Group XIV. included all apparatus for heating, lighting, ventilation, water supply and drainage, such as stoves, fire-places, kitchen ware, gas fixtures, water-pipes, etc. The number of exhibitors was small, there being only 49 awards, of which nearly all were to Americans. Among these were the following :

W. H. Jackson & Co., New York, Grates and Fenders for Open Fires and Fire Places.

Wakefield Earth Closet Company, New York, Earth Closets, Cabinet Closets.

Tuttle & Bailey, New York, Vertical Wheel Registers for Heating and Ventilation.

Jacob H. Polhamus, New York, Refrigerating Cupboard and Safe.

Smith Refrigerator Company, Albany, New York, Dry Air Refrigerator.

W. S. Carr & Co., New York, Bath-Room Furniture.

Lewis W. Leeds, New York, Improved Methods of Ventilation and Heating (diagrams).

William G. Creamer, New York, Car Lamps.

Group XV.—This group was devoted to builders' hardware, edge tools, cutlery, etc., and awards to the number of 214 were made. Among them I observed the following large American houses named as receivers of medals:

J. L. Mott Iron Works, New York, Fountains, Vases, and Statuary.
 The Meriden Cutlery Company, Meriden, Connecticut, Table Cutlery.
 Yale Lock Manufacturing Company, Stamford, Connecticut, Time, Safe, Door, and other Locks.
 Hall's Safe and Lock Company, Cincinnati, Ohio, Safes.
 Herring & Co., United States, New York, Fire and Burglar-proof Safes.
 Marvin Safe and Scale Company, New York, Fire and Burglar-proof Safes and Combination Locks.

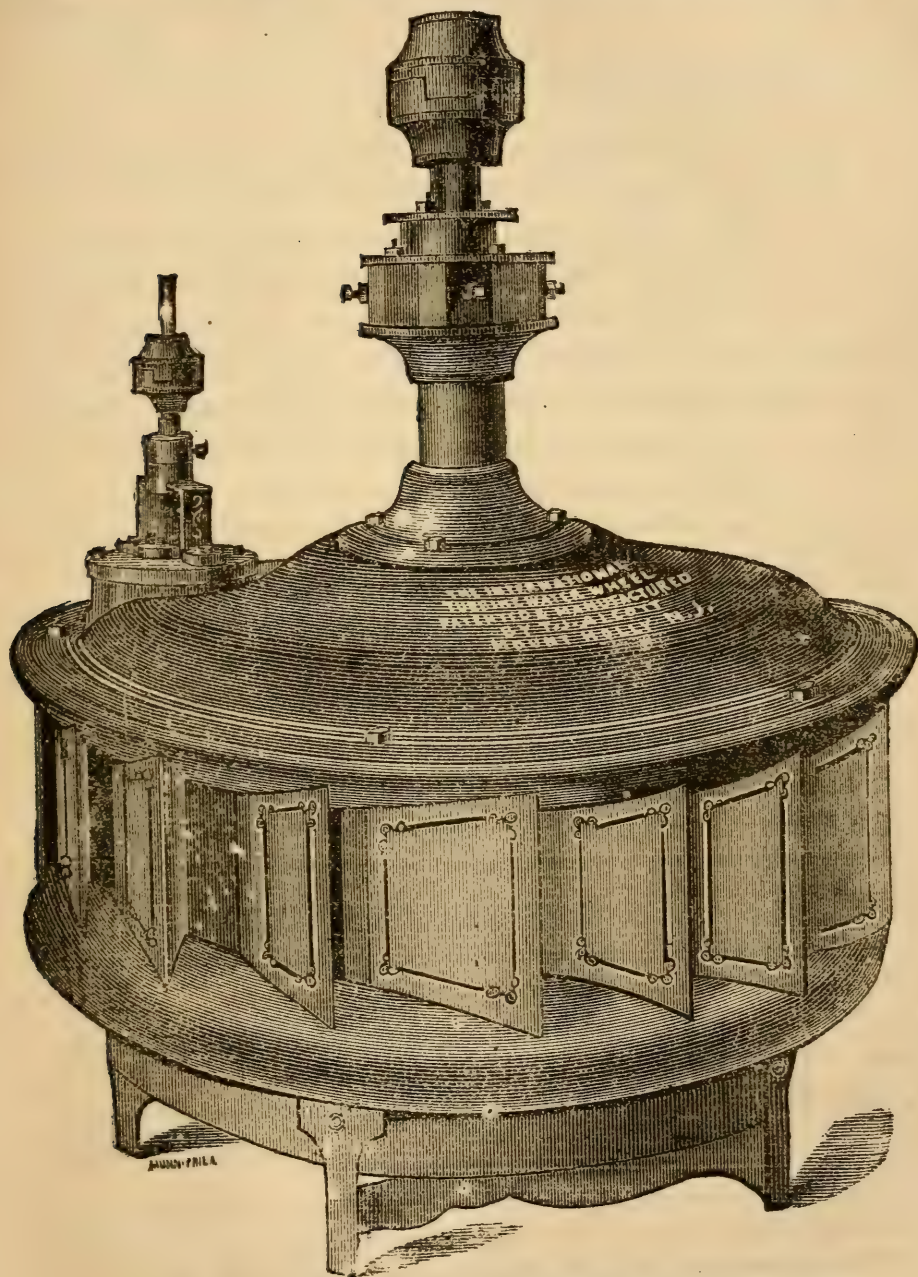
Group XVI.—"Military and sporting arms, weapons, apparatus of hunting explosives, etc.," was the title of Group XVI., and in this department only 70 exhibitors appeared. The principal awards to American exhibitors were made to the following:

E. Remington & Sons, Ilion, New York, Firearms and Ammunition.
 Merwin, Culbert & Co., New York, Pocket Revolvers.
 Clark & Sneider, Baltimore, Maryland, Breech-loading Guns.
 Sharpe's Rifle Company, Bridgeport, Connecticut, Breech-loading Hunting Rifle.
 E. Remington, Ilion, New York, Breech-loading Guns and Target Rifle.
 Colt's Patent Firearms Manufacturing Company, Hartford, Connecticut, Colt's Revolver.
 Richard J. Gatling, Hartford, Connecticut, The Gatling Gun.
 South Boston Iron Company, Boston, Massachusetts, Condensed Bronze Cannon and Howitzer.

Group XVII.—Pleasure and travelling carriages, carts, wagons, sleighs, and all other manner of vehicles and their accessories, such as fittings, robes, rugs, etc., were named under Group XVII., and 150 exhibitors were given awards. The principal American exhibitors thus distinguished were as follows:

L. P. Tibbals, New York, Children's Carriages.
 J. A. Conover, New York, Children's Carriages and Wooden Horses.
 Peters & Calhoun Company, Newark, New Jersey, Harness, Saddles, etc.
 C. M. Moseman & Co., New York, Fire Engine Harness.
 J. B. Brewster & Co., New York, Carriages.
 Wood Brothers, New York, Carriages.
 C. T. Reynolds & Co., New York, Carriage Varnishes.

Group XVIII.—"Railway plant, rolling stock and apparatus, and road engines" was the title of this group. The ex-



ALCOTT'S TURBINE WHEEL, EXHIBITED IN MACHINERY HALL.

hibitors were only 66 in number, and of these 42 were Americans. The awards to the latter most worthy of notice were as follows:

Philadelphia & Reading Railroad Company, Reading, Pennsylvania, Locomotives.

New York Central Railroad Company, New York, Postal Car.

Pennsylvania Railroad Company, Altoona, Pennsylvania, United States Postal Car.

Pullman Palace Car Company, Chicago, Illinois, Hotel, Parlor, and Sleeping Car.

Pennsylvania Railroad Company, Altoona, Pennsylvania, Railroad Track.

John Stephenson Company, New York, Street Tramway Cars.

Group XIX.—This group was devoted to the exhibition of models of vessels and apparatus of transportation, including life-boats and salvage apparatus, propeller wheels, ropes, steering apparatus, and even balloons and their apparatus. The exhibitors were few, and only 30 awards were made. Among them were the following to leading American exhibitors :

Irving Grinnell, New Hamburg, New York, Ice Yacht.

C. & R. Poillon, New York, Model of Schooner Yacht Sappho.

A. H. Hark & Co., New York, Flax Twines.

Lawrence Waterbury & Co., New York, Manilla Rope.

John A. Roebling's Sons & Co., Trenton, New Jersey, Wire Ropes.

E. Waters & Sons, Troy, New York, Paper Boats.

New York Safety Steam Power Company, New York, Steam Yacht.

Group XX.—Under this head were grouped motors, hydraulic and pneumatic apparatus, such as boilers, water-wheels, shafting, belting, pumps, pneumatic railways and tubes, hydraulic jacks, presses, fire-engines, and the like. Contrary to general expectation the exhibitors in this group were numerous, and 351 awards were made. Included among those to American exhibitors are the following :

Hartford Pump Company, Hartford, Connecticut, Compressed Air Pump.

Babson & Dwight, New York, Self-Regulating Fire Escape.

Chard & Howe, New York, Lubricating Cup and Compound.

John A. Roebling's Sons & Co., Trenton, New Jersey, Wire Rope, Rigging, etc.

Rumsey & Co., Seneca Falls, New York, Pumps, Hydraulic Rams.

Hubbard & Aller, Brooklyn, New York, Steam Pumps.

Otis Brothers & Co., New York, Passenger Elevator, etc.

John T. Noye & Son, Buffalo, New York, Turbine.

Blake Hose Company, Boston, Massachusetts, Fire Hose.

Wells Balance Engine Company, New York, Double Piston Engine

Richard Dudgeon, New York, Hydraulic Jacks and Punches.

Vulcanized Fibre Company, Wilmington, Delaware, Pipes.

Champion Fire Extinguisher Company, Louisville, Kentucky, Chemical Engines, Hook and Ladder Trucks.

Babcock Manufacturing Company, New York, Chemical Engines and Attachments.

William K. Platt & Co., Philadelphia, Pennsylvania, Fire Extinguishers.

Rumsey & Co., Seneca Falls, New York, Hand Fire-Engine.

Yale Lock Manufacturing Company, Stamford, Connecticut, Safety Hoisting Machines, etc.

Morris, Tasker & Co., Philadelphia, Pennsylvania, Wrought Iron Tubes, Tools, and Brass Work.

Griffith & Wedge, Zanesville, Ohio, Vertical Portable Engine.

Group XXI.—Machine tools, whether of wood, metal, or stone, were embraced in this group. The awards numbered 160, and of these 100 went to American exhibitors, including the following :

Stephen's Patent Vise Company, New York, Parallel Vises.

Knickerbocker Ice Company, Philadelphia, Pennsylvania, Ice Tools.

Henry Disston & Sons, Philadelphia, Pennsylvania, Circular and other Saws.

John W. Griffiths, New York, Wood-bending Machine.

Simonds Manufacturing Company, Fitchburg, Massachusetts, Circular Saws.

S. A. Wood's Machine Company, Boston, Massachusetts, Wood-working Machinery.

Clough & Williams, New York, Machine for making Cork Handles of Wire.

Old Colony Rivet Works, New York, Planing and Shaping Machine.

American Saw Company, Trenton, New Jersey, Punching, Shearing, and Pressing Machines.

John Roach & Son, New York, Wrought Iron Forgings.

Group XXII.—This embraced machines, apparatus, and implements used in sewing and making clothing, lace, ornamental objects, pins, etc. There were only 48 exhibitors. Of the American exhibitors the following received awards:

American Watch Company, Waltham, Massachusetts, Watchmaking Machinery, and a System of Watchmaking.

T. C. Page, Chicopee Falls, Massachusetts, Lamb Knitting Machine.

Remington Sewing Machine Company, Ilion, New York, Button-hole Sewing Machine.

The Singer Manufacturing Company, Elizabeth, New Jersey, Sewing Machines for Stitching Buttonholes.

Wilcox and Gibbs Sewing Machine Company, New York, Sewing Machines.

The Howe Machine Company, Bridgeport, Connecticut, Shuttle Sewing Machines.

Wilson, Sewing Machine Company, Chicago, Illinois, Wilson's Family Sewing Machine.

The Weed Sewing Machine Company, Hartford, Connecticut, Shuttle Sewing Machine.

Wheeler and Wilson Sewing Machine Company, Bridgeport, Connecticut, Sewing Machines for Leather.

Wheeler and Wilson Manufacturing Company, Bridgeport, Connecticut, Sewing Machines.

The Singer Manufacturing Company, Elizabeth, New Jersey, Family Sewing Machines.

Group XXIII.—

In this department were grouped all "agricultural machines, implements of agriculture, horticulture, and gardening." Of the 260 awards made three-fourths were to American exhibitors, principal among whom I notice the names of the following:

Wheeler, Millick & Co., Albany, New York, Horse Hay Rake.

R. H. Allen & Co., New York, Sugar Land Plows, Cultivators, etc.

Blymer Manufacturing Company, Cincinnati, Ohio, Sugar Machinery.

A. J. Nellis & Co., Pittsburgh, Pennsylvania, Patent Process of Chilling Steel.

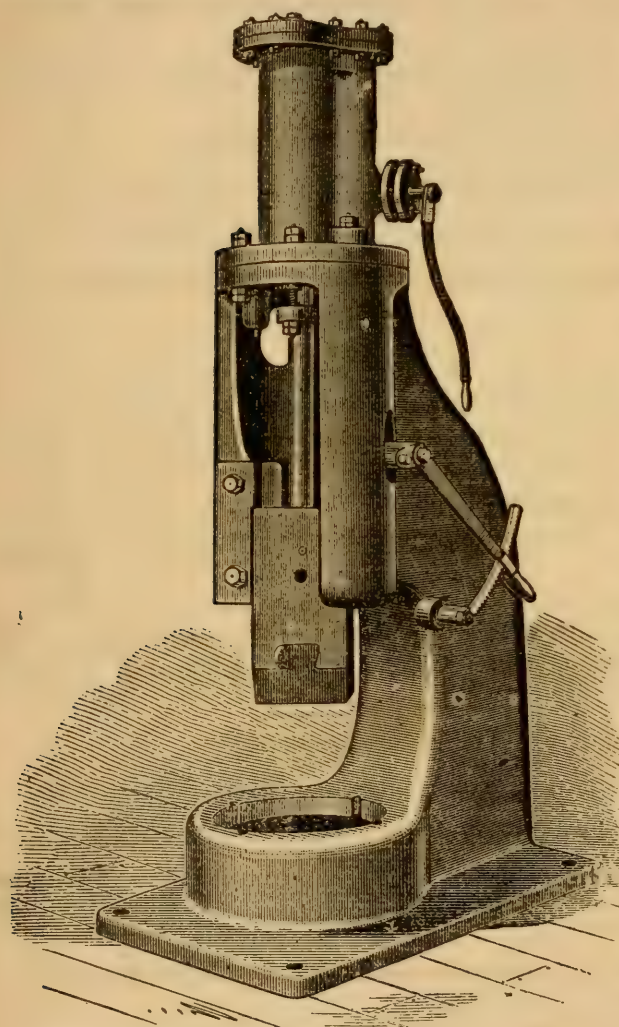
A. J. Nellis, Pittsburgh, Pennsylvania, Hay Fork, Gripping Claw, etc.

J. Tingley, Philadelphia, Pennsylvania, Hand Power Churn.

A. B. Farquhar, York, Pennsylvania, Cotton Cultivator.

George Barnes & Co., Syracuse, New York, Knives and Sickles.

I. C. Hoadley & Co., Lawrence, Massachusetts, Portable Farm Engines.



STEAM HAMMER, EXHIBITED BY FERRIS & MILES,
IN MACHINERY HALL.

Walter A. Wood, Hoosac Falls, New York, Harvester.

Walter A. Wood, Hoosac Falls, New York, Self-Binding Reapers.

Pennock Manufacturing Company, Kennett Square, Pennsylvania, Double Arm Hay Forks.

A. J. Nellis & Co., Pittsburgh, Pennsylvania, Iron Tie for Binding Cotton.

R. H. Allen & Co., New York, Horticultural Implements.

Walter A. Wood, Hoosac Falls, New York, Sweep Rake Reapers.

Group XXIV.—Embraced in this group were the instruments and apparatus of hygiene, medicine, surgery, prosthesis, etc. Of 132 exhibitors to whom awards were made, I find the following to be the most prominent American manufacturers :

McKisson & Robbins, New York, Pharmaceutical Preparations.

Crandall & Son, New York, Crutches.

Robert Shoemaker & Co., Philadelphia, Pennsylvania, Drugs and Fluid Extracts.

J. B. Seeley, Philadelphia, Pennsylvania, Trusses.

Elastic Truss Company, New York, Trusses.

Group XXV.—Embraced in this department were exhibits of “instruments of precision, research, experiment, and illustration, including telegraphy and music.” There were 321 awards, the principal American exhibitors receiving medals being the following :

George Steck & Co., New York, Grand, Square, and Upright Pianos.

Decker Brothers, New York, Grand, Square, and Upright Pianos.

Bacon & Karr, New York, Square and Upright Pianos.

Burdett Organ Company, Erie, Pennsylvania, Reed Organs.

Mason and Hamlin Organ Company, Boston, Massachusetts, Reed Organs and Harmoniums.

Wm. Knabe & Co., Baltimore, Concert, Grand, Square, and Upright Pianos.

James W. Queen & Co., Philadelphia, Pennsylvania, Mathematical and Drawing Instruments, Microscopes.

Albert Weber, New York, Grand, Square, and Upright Pianos.

Holmes Burglar Alarm Telegraph Company, New York, Burglar Alarm Telegraph.

Peloubet, Pelton & Co., New York, Reed Organs.

Atlantic and Pacific Telegraph Company, Edison's American Automatic Telegraph.

Western Union Telegraph Company, New York, Quadruplex Electric Telegraph, and for the Phelps Printing Telegraph.

American District Telegraph Company, Improved Gravity Battery, District Telegraph Apparatus.

Chickering and Sons, Boston, Massachusetts, Concert, Grand, Upright, and Square Piano-Fortes.

Steinway & Sons, New York, Grand, Square, and Upright Pianos.

Group XXVI.—Only 163 exhibitors, of whom only 18 were Americans, furnished displays for Group XXVI., which was devoted to the illustration of architecture and engineering. The American exhibitors who received awards were as follows :

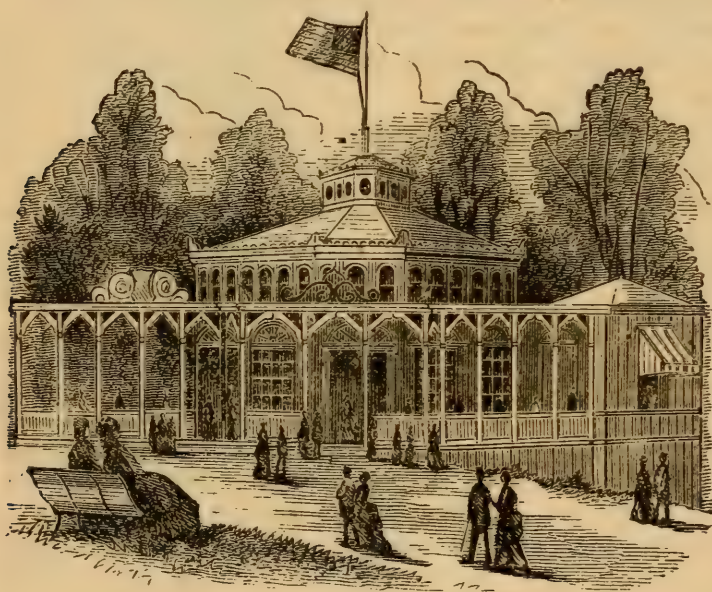
Thomas H. Speakman, Philadelphia, Combined Wire and Wood Fence for Farm Use.

J. Herbert Shedd, Providence, Rhode Island, a Hydrant with all the necessary Appurtenances.

State of Massachusetts, New England, Hospital for Women and Children.

State of Ohio, State Building.

State of Massachusetts, State Hospital for Insane.



PORTUGUESE GOVERNMENT BUILDING.

Michigan Survey Commission, Michigan, Geological Charts.

Kentucky Survey Commission, Geological Charts and Profiles.

Q. M. Gen. M. C. Meigs, Washington, District of Columbia, Plans of two Large Bridges.

Prof. Semper, Plans of Town Hall.

State of Massachusetts, Exhibit of Normal Schools, etc.

United States, Exhibits of Engineering.

Engineer Corps, United States Army, Pontoon Bridge for Advanced Guard and Army.

United States Government, Collective Exhibit Cliff and Cave Dwellings.

Group XXVII.—As this department embraced the exhibits in Memorial Hall and its Annex, and the Photographic Hall,

the list of awards is simply a list of the painters, sculptors, photographers, and others whose works have been submitted. Of these exhibitors receiving awards for other than purely art reproductions, the following list will be interesting :

American Photo-Lithographic Company, Heliographs.
 W. Kurtz, New York City, Photographs.
 Tiffany & Co., New York, Silver inlaid with Niello and Copper.
 J. L. Mott & Co., New York City, Castings in Iron.
 Knoedler & Co., New York, Engravings, Etchings, etc.
 W. E. Marshall, New York City, Engraving.
 Continental Bank Note Company, Engravings.
 National Bank Note Company, Engravings.
 Prang & Co., Boston, Massachusetts, Chromo-Lithography.
 John Rogers, New York City, Sculpture.
 Gorham & Co., Providence, Rhode Island, Repoussé Work in Silver.
 Tiffany & Co., New York, Repoussé Work in Silver and Iron.
 Cassell, Petter & Galpin, London, Lithographs.
 London Graphic Company, Drawings and Wood Engravings.

Group XXVIII.—"Education and Science" was the title of this department, and it embraced a large number of subdivisions. There were 672 exhibitors, of whom the following are particularly worthy of mention as having received awards :

D. Appleton & Co., New York, Various Publications.
 A. S. Barnes & Co., New York, School Books, Maps, Charts.
 A. T. Bicknell & Co., New York, Books for Builders.
 Claxton, Remsen & Haffelfinger, Philadelphia, Books.
 S. C. Griggs & Co., Chicago, Illinois, Publications.
 Harper & Brothers, New York, Books.
 Henry Holt & Co., New York, Books.
 H. O. Houghton & Co., Cambridge, Massachusetts, Plain and Colored Lithographic Printing.
 Ivison, Blakeman, Taylor & Co., New York, School and College Text Books.
 F. Leypoldt, New York, Publishers' Weekly, etc.
 Orange Judd & Co., New York, Books, etc.
 James R. Osgood & Co., Boston, Books.
 The Sons of Geo. P. Putnam, New York, Books, Literature, and History.
 Porter & Coates, Philadelphia, Books.
 J. Sabin & Sons, New York, Bibliographical Publication.
 Scribner, Armstrong & Co., New York, Books and Maps.
 L. Prang & Co., Massachusetts, System of Drawing designed by W. Smith, and other Publications on Art Teaching.
 Kay & Brothers, Philadelphia, Law Books.

Lee & Sheppard, Boston, Massachusetts, Works of Charles Sumner, etc.

Miss E. M. Coe, New York, Kindergarten Work and Materials.

J. W. Schemmerhorn & Co., New York, School Apparatus, Furniture, and Health Lift.

Illustrated London News, London, Specimens illustrating the Art Department of *The Illustrated News*.

Cassell, Petter & Galpin, London, Illustrated Books, Publications, Serials, etc., etc.

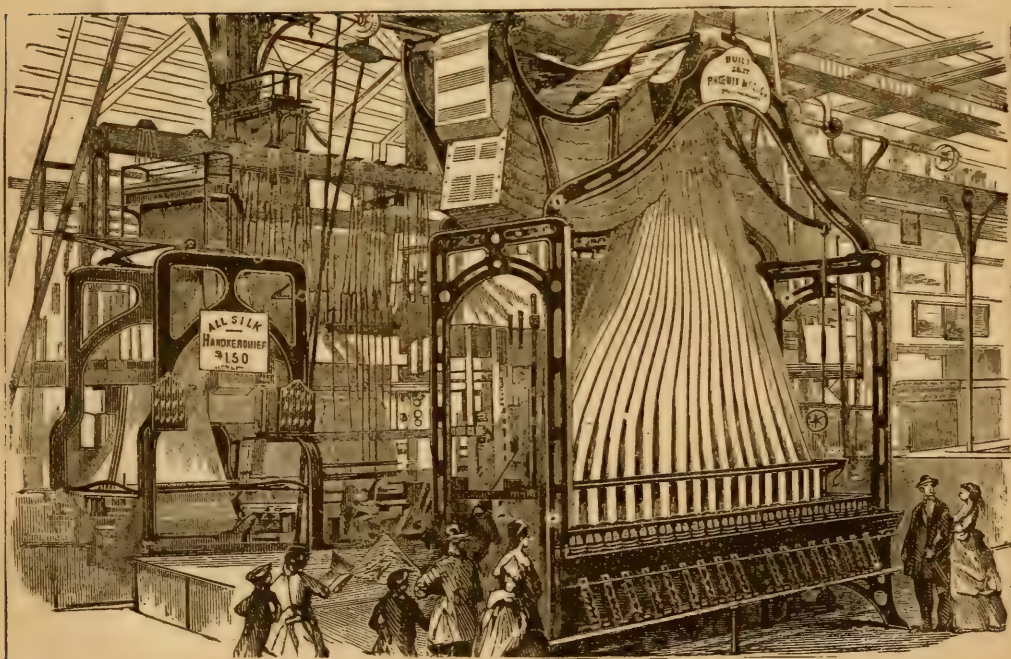
The Graphic Newspaper, London, Illustrated Newspaper.

Central Pacific Railroad Company, Natural Objects and Illustrations of Objects, representing the Flora and Fauna of California and other portions of the country traversed by the Central Pacific Railroad.

University of Pennsylvania, Philadelphia, Books and Apparatus of Instruction.

Institute of Technology, Massachusetts, Students' Work.

Catholic Publication Society, Ecclesiastical History.



VIEW OF THE LOOMS, MACHINERY HALL.

CHAPTER XXVII.

THE CLOSE OF THE EXHIBITION.

The Fireworks on the 9th of November—The Closing Day—Unfavorable Weather—The Attendance at the Exhibition—The Change of Programme—Ceremonies in Judges' Hall—The Music—Prayer of Rev. Dr. Seiss—Address of Hon. D. J. Morrell—The Te Deum—Remarks of President John Welsh—Address of Director-General Goshorn—Speech of General Hawley—President Grant Declares the Exhibition Closed—Stopping the Machinery—Scene in Machinery Hall.

THE Centennial Commission resolved at an early day to close the Exhibition with as elaborate and appropriate ceremonies as those which had marked its commencement.

On the night of the 9th of November, a grand display of fireworks was given on George's Hill by Messrs. Brock & Co., of London, and Professor Jackson, of Philadelphia. This was the most imposing and successful pyrotechnic display of the Exhibition, and was witnessed by a vast multitude within the grounds and a still larger throng without the enclosure.

When the morning of Friday, November 10th, the day appointed for the formal closing of the Centennial Exhibition arrived, there was manifested on all sides a feeling of mingled regret and pleasure—regret that the grand Exhibition, with all its glories, with its wealth of attractions, its mechanical triumphs, and its treasures of art, would be, in a few brief hours, but a bright page in a glorious history; pleasure that now, on its closing day, the country could point with pride to the six months' career of the great enterprise—a half year without a blot on its record.

The morning of November 10th opened with clouds and rain, and during the day a cold, disagreeable storm prevailed. In

spite of this, however, the early trains and street cars were crowded with visitors, and every available vehicle was pressed into service by the multitude. As soon as the entrance gates were opened there was a rush for them by the crowd that had gathered about them. The entire force of the Centennial National Bank was actively engaged in furnishing the required change, and the turn-stile keepers were compelled by sheer force of necessity to accept, without close scrutiny, the admission fees from the good-natured, pushing throng. This stream of people continued to pass through the turn-stiles until late in the afternoon without intermission.

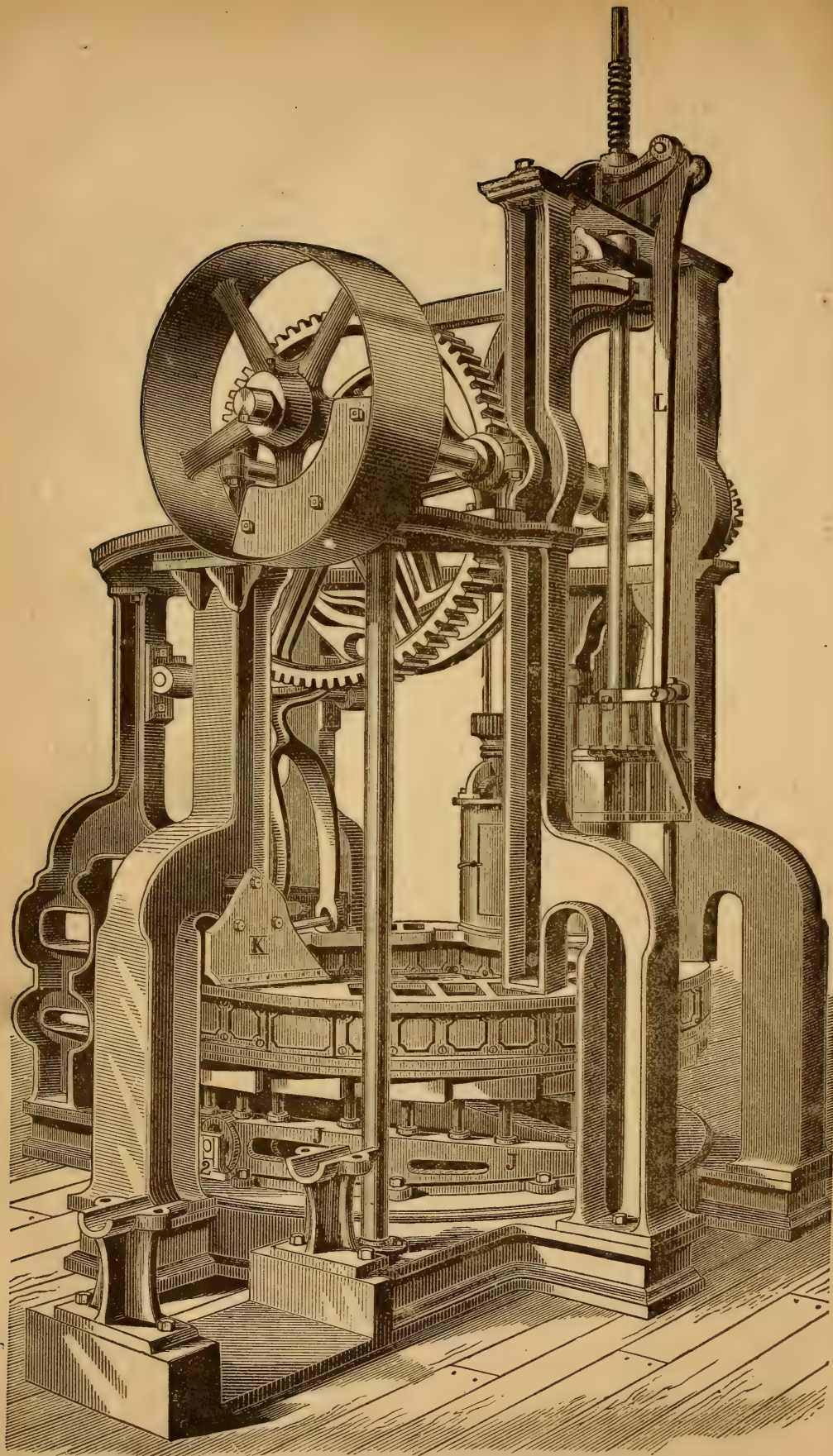


RHODE ISLAND STATE BUILDING.

It had been intended to hold the closing ceremonies in the open air at the western end of the Main Building, but the steady rain which fell during the day rendered a change in this part of the programme imperative. Judges' Hall was therefore chosen as the most suitable place for these exercises. A vast crowd collected around the hall, and the disappointment at not being able to witness the closing ceremonies was general. A broad passage way was kept open in front of the building by two long lines of the Centennial Guard, which effectually barred the entrance of any one unless provided with the proper card of admission.

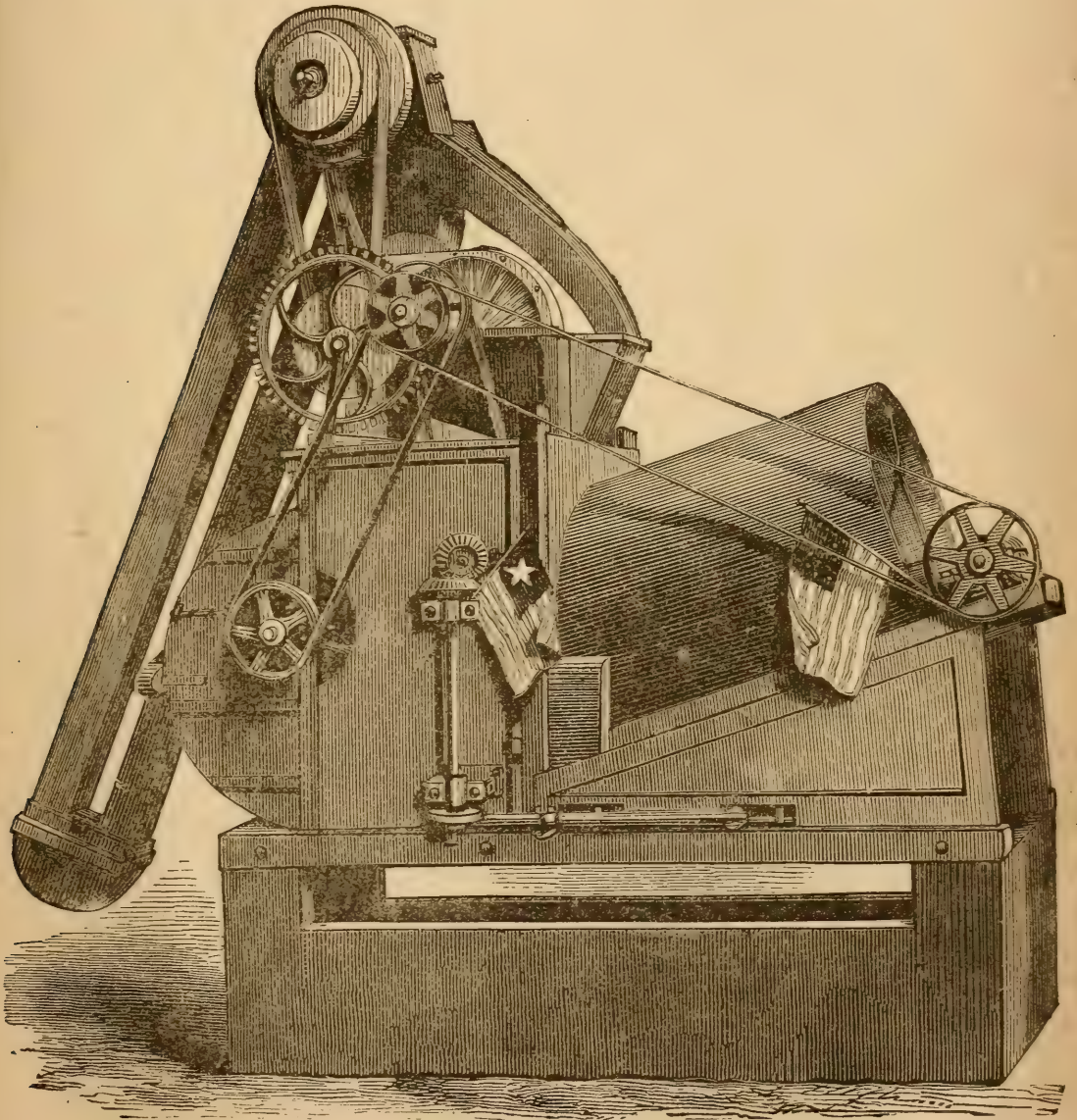
Twelve o'clock struck, but the rain continued to fall steadily, and there were no signs of a change of weather, no hope that the rain would cease and permit the ceremonies to take place in the open air. Word was accordingly sent to the distinguished personages to repair to the Judges' Hall, there to participate in the ceremonies which were formally to close the grand Exhibition. The arrangements, everything considered, were admirable. The First City Troop, under Captain Fairman Rogers, and supported by a strong detachment of Centennial Guards, kept back the ever-increasing crowds, and formed an avenue between the thousands of visitors who were at least determined to see if they could not hear; and carriage after carriage rolled up to the entrance, and their occupants, provided with the open sesame in the shape of a ticket marked "Admit to the Judges' Pavilion," quickly passed into the interior. By two o'clock all the visitors had arrived, and were in the places assigned them.

On the platform sat President Grant. To his right were General Hawley, Director-General Goshorn, Secretary of War J. Donald Cameron, and George W. Childs, Esq. To the left were Commissioner Daniel J. Morrell, Secretary of State Hamilton Fish, Rev. J. H. Seiss, John Welsh, Esq., and General Robert Patterson. Immediately back were Governor Hartranft; Governor Rice, of Massachusetts; Governor Bedle, of New Jersey; Governor Cochran, of Delaware; Chief Justice Waite, Associate Justices Davis and Bradley, and Mayor Stokley. Sir Edward Thornton, the British Minister, had donned his court dress to do honor to the occasion. General N. P. Banks, displaying unaffected interest, stood near her Majesty's envoy. Thomas A. Scott chatted to Bishop Simpson, whose fine features were lit up with a feeling of interest at the scene. Asa Packer, millionaire and philanthropist; Frederick Fraley, who has handled the Centennial receipts with the ability of an accomplished financier; U. S. Grant, Jr., the President's private Secretary; Aristarchi Bey, saturnine and cynical in appearance; Bayard Taylor, the Centennial poet; ex-Governor Straw, of New Hampshire; Professor Blake, of the Smithsonian Institute; S. M. Felton, President of the Philadelphia, Wilmington



GREGG'S IMPACT BRICK MACHINE, EXHIBITED IN MACHINERY HALL.

and Baltimore Railroad, and others, formed a background which was thoroughly representative in its character. To the right sat the members of the staffs of the Governors, and a number of distinguished army and naval officers, and on the left were accommodated the Centennial Commissioners, the members of



LIBERIAN COFFEE HULLER, EXHIBITED IN AGRICULTURAL HALL.

the Board of Finance, and a number of the Diplomatic Corps. In front, and filling every vacant seat, were the privileged personages admitted to witness the closing scenes.

At two o'clock the Centennial Inauguration March, written by the great German composer, Professor Wagner, for the opening ceremonies of the Exhibition, preluded the formal exercises, and its now familiar notes were greeted with enthusiastic applause. When, on the opening day, this composition was for the first time publicly performed, the effect was rather disappointing, as in the open air only the wind instruments could be clearly heard. So far as the music was concerned the change of programme to the Judges' Hall proved a decided advantage, for the massive chords of the "Centennial March" rolled out upon the air in waves of richest harmony, while every note of the most intricate evolutions was distinctly marked. General Hawley, President of the Centennial Commission, who acted as the presiding officer, then introduced Rev. Joseph A. Seiss, who offered the following fervent prayer :

Almighty God ! who hast made of one blood all nations of men for to dwell on all the face of the earth, we, Thine unworthy servants, look up to Thee through the only mediator, Jesus Christ, Thy Son. We worship Thee as the Creator, the Sustainer, and the Governor of all things, visible and invisible, to whom all homage is due from all creatures in all places of Thy boundless dominion. We offer unto Thee our thanks for Thine unsearchable goodness, and humbly pray Thee to touch us with a right sense of the majesty of Thy glory and of the wealth of Thy loving kindness, that our hearts may ever glow with reverence and affection toward Thee whensoever we contemplate Thy wonderful works toward the children of men.

For the earth, which Thy hands have fastened ; for its continents and seas, its islands, lakes, rivers, mountains, plains, valleys, and watersprings ; for what groweth out of its surface, and for what lieth in and beneath its soil ; for its climates, its seasons, its zones, and the steady continuity of all that pertains to it, we thank Thee. For the human race, which Thou hast created ; for the endowments with which Thou hast clothed mankind ; for their preservation, their progress, their spread, and their redemption ; for their happiness in this life, and for their hopes for eternity, we thank Thee.

For this great country, for the richness of its productions, for the variety of its adaptations, for the ampleness of its extent, and for the splendor of its adornments, we thank Thee. For the mingled peoples to whom Thou hast given this land, for their virtues, their intelligence, their adventure, and their prosperity, and especially for the century of growth, triumph, and ameliorating power in their experiment of popular government, O King of the world ! we thank Thee. For the peaceful coming together here of the representatives of the nation, for this exhibit of the industries, art, genius, and accomplishments of so many civilizations and sorts of men ; for the display of the products of so



"KEYSTONE SODA WATER APPARATUS," EXHIBITED BY CHARLES LIPPINCOTT & CO. IN MACHINERY HALL.

many lands and seas; for the comfort and satisfaction with which multiplied thousands have come and gone during these months; for the educating force, the lessons of wisdom, and the increase of knowledge thus furnished to millions of observers, and for the success with which Thou hast favored this undertaking of Thy servants, good Lord, we thank Thee.

And now, as this spectacle of fraternal converse and mutual teaching comes to its termination, vouchsafe, O God! to crown it with Thy blessing. Whatso-

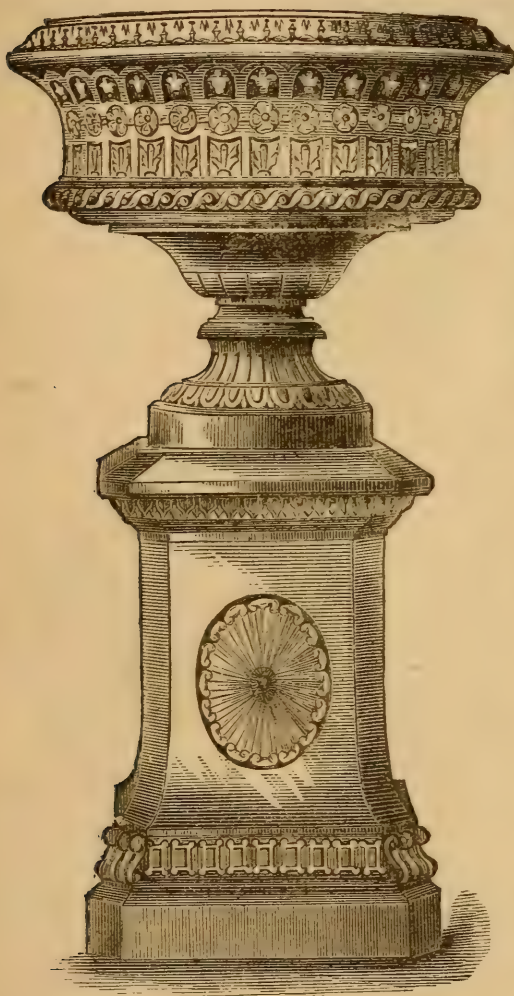
ever has been displeasing in Thy sight, pardon and forgive. Whatsoever has been in harmony with Thyself, follow with Thy continued favor. And graciously overrule all to the good of our country and of the whole world.

These commissioners and representatives of the nations bring back in safety to their homes, laden with fruits here gathered, to profit and enrich the souls and estates of their peoples.

These officers and executives, who have labored so long and courageously in the procurement, organization, and guardianship of the public benefit so happily enjoyed, reward and bless for their faithful toil and great achievement.

These articles, exhibits, and teachings, as they go hence into all countries, make heralds and instruments of augmented comfort, convenience, elevation, and prosperity to the communities into which they come.

This new and friendly intercourse between the ends of the earth make potent for the furtherance of kindly brotherhood among mankind, the progress of the truth, the triumph of peace and



TERRA-COTTA VASE, EXHIBITED IN THE
MAIN BUILDING.

salvation, and the upbuilding of whosoever is agreeable to Thy own sovereign will and purposes.

And as our own dear nation now starts out upon the unknown sea of a new century, our united prayers are lifted to Thee, O God! beseeching Thy Divine Majesty to be gracious to this youngest child in the family of nationalities;

that Thou wouldst spread Thy protecting hand over it in its dangers; that Thou wouldst forgive its sins and indiscretions, and that Thou wouldst guide it evermore in safety.

Its President, its Governors, its Legislatures, its judges and magistrates, and the commanders in its army and navy, endow plenteously with the spirit of wisdom, justice, faithfulness, and devotion. Uphold them in their duties, and prosper them always in whatsoever is right, and true, and good. Fill all public servants with prudent counsels, trusty speech, sound integrity, and honest fear of the Lord. Send down upon our churches, our religious teachers, our schools, and all our means of education, Thy Holy Spirit, that intelligence, virtue, truth and piety may be our inheritance forever.

Give grace to our people to acknowledge Thee, the only true God, by whose spirit all things are governed, and dispose them toward Thine ordinances and commands, that they may dwell together in unity and concord, and in all godliness and honesty. And although we have often provoked Thy displeasure and deserved Thy punishments, yet we beseech Thee, of Thy great goodness, not to deal with us after our sins, but to defend and preserve unto us our free institutions and national happiness. Scatter, by Thy mighty power, every cloud that rises to threaten our nation's permanence or peace. Ward off calamities of war and bloodshed, and all moral deterioration and decay, and graciously protect us against discord and sedition within, and against invasion and spoliation from without, that our precious liberties may not be taken from us, but descend from generation to generation.

And now, O God of Nations, King of Glory, Lord of Heaven and Earth, be pleased to accept the thanks and petitions which we thus present before Thy Majesty, and graciously hear our prayers.

Mercifully, also, bestow Thy heavenly benediction upon the ceremonies of this hour, and upon Thy servants forever, that all our works begun, continued, and ended in Thee may always redound to the honor of Thy holy name, through Jesus Christ, Thy Son, our Lord and Saviour, to whom, with Thee and the Holy Ghost, ever one God, be glory and dominion, world without end. Amen.

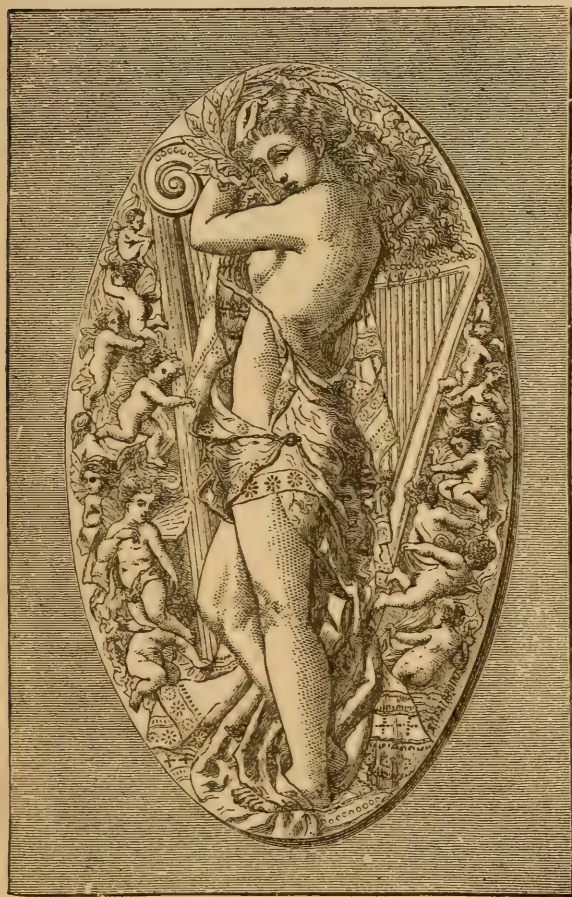
A chorale and fugue from Bach were then performed by the orchestra, after which the Hon. D. J. Morrell, Chairman of the Executive Committee of the United States Centennial Commission, was introduced to the audience. When the applause which greeted him had subsided he said:

On the 9th day of March, 1870, it was my privilege to introduce in Congress a bill to provide for holding in the city of Philadelphia the Exhibition which this day brings to a close. On the 3d of March, 1871, that bill became a law, but not without opposition and amendments, which took from it all provisions for carrying out the purpose contemplated by the act itself. On the 4th of March, 1872, the Centennial Commission met and organized, and

the labor of preparing for the Exhibition was commenced, in the face of obstacles such as were never encountered in a similar undertaking.

The government had refused aid ; local jealousies were powerful ; the newspapers of the country, with few exceptions, were lukewarm or openly hostile, and the mass of the people could not be interested

in an event which seemed far away in the future. During the first year of the life of the Commission doubt everywhere prevailed, and I am ashamed to say, I shall strive to forget, and I hope that history will not record, how few had faith in the success of our enterprise, and how many wise and eminent citizens rendered a hesitating support, or refused to commit themselves to what, to them, seemed a hopeless cause. In this time of gloom the city of Philadelphia was not afraid to charge itself with the expenses incident to the organization and labors of the Commission, and in this, and

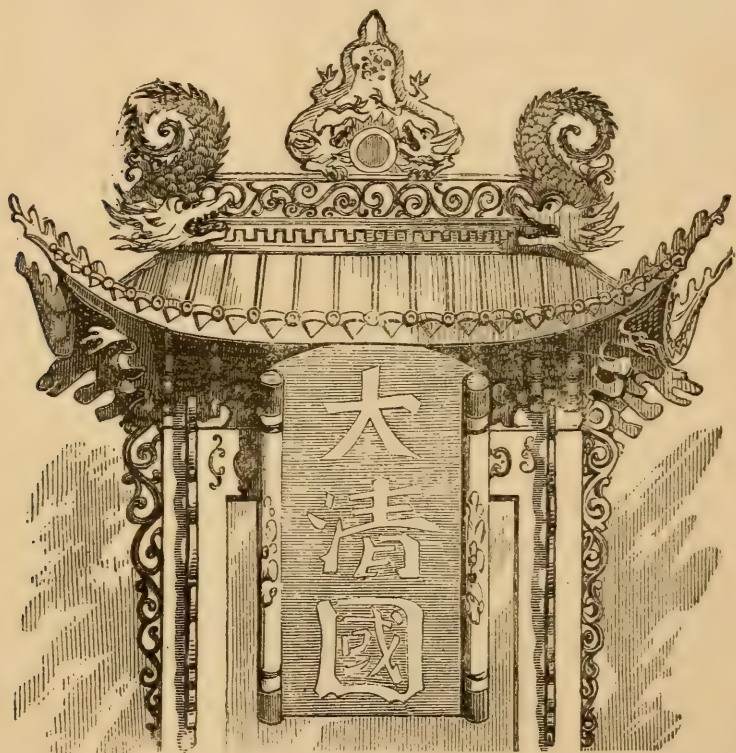


SILVER BASS-RELIEF PLAQUE, REPOUSSE, EXHIBITED BY THE GORHAM COMPANY.

all other official acts, her municipal authorities have shown courageous liberality.

The creation of the Board of Finance was the turning-point in the fortunes of the Centennial Exhibition ; from that moment its prospects brightened, and, though that Board was confronted with a financial panic and other discouraging events, its executive offi-

cers moved forward in the confidence that "knows no such word as fail." By slow and laborious stages public interest was aroused; the Women's Centennial Commission labored with zeal and efficiency; money from private subscriptions to the stock of the Board of Finance flowed into the treasury; the State of Pennsylvania and the city of Philadelphia made liberal appropriations for the uses of the Exhibition, of which a memorial will remain to future Centennials; and, when success was assured, the National Congress recognized its duty and gave us material aid.



ORNAMENTAL PAGODA, IN THE CHINESE SECTION, MAIN BUILDING.

"As a woman who is in travail hath sorrow," but afterwards "she remembereth no more her anguish for the joy that a man is born into the world," so the pangs of this great labor are far away and lost in this hour of its triumph.

It is but just, however, in speaking for the executive officers of the Centennial Commission, that I should point the future historians of the Exhibition to the great difficulties which have been encountered and overcome, and claim from them a charitable criticism. In comparing this work with that which has been done elsewhere,

I beg them to note that this has been accomplished by the voluntary agents of a free people, clothed with no official or titular prestige or distinction, and without Governmental support.

The members of the Commission and the Board of Finance have recognized that they were on exhibition as fully as any material object enclosed within these grounds; that thousands of eyes would scan their every act, after the fashion of these times, which is to attribute mercenary or corrupt motives to all engaged in the execution of public trusts; and I shall esteem above the prizes the nation has won in the Exhibition, an award from that higher group of judges which represents the conscience of the world that this work which we to-day commit to history is free from taint, that good men shall say it was honest. The managers of future Centennial celebrations to be held on these grounds will see and do things more wonderful than our wildest dreams, and the remnants of our finest things may be exhibited by them as proofs of the rudeness of early days; but in the records we have made the full measure of our manhood will go down to them untouched by the gnawing tooth of Time.

Of the Exhibition, now to be numbered with the things of the past, it is difficult to speak. The nations are here; they have made this great spectacle what it is, and they deserve the gratitude of the American people. While they have taught much, they have also learned something, and they have seen in the crowds of American citizens, of all occupations and conditions of life, who have thronged these grounds, a polite, orderly, self-respecting and self-governing people. So far as their representatives have entered into our social life we will hope that they have found that what may be lacking in form is made up in substance; that the simplicity of republican manners is dignified by the sentiment of good-will to men.

The Exhibition was opened by starting in motion the Corliss engine, that giant of wonder to all, which for six months, with equal pulse, without haste, without rest, has propelled an endless system of belts and wheels. Silent and irresistible, it affects the imagination as realizing the fabled powers of genii and afrit in Arabian tales, and, like them, it is subject to subtle control. When these our ceremonies here are ended, the President of the United States, by the motion of his hand, will make the lightning his messenger to stop the revolution of its wheels, and at the same instant

to tell the world that the International Exhibition, which marked the Centennial of American national life, is closed.

When Mr. Morrell ceased, Theodore Thomas gave a signal to the Centennial Chorus in the western balcony, and the orchestra and chorus rendered, with fine effect, Dettingen's *Te Deum*.

The next speaker was Mr. John Welsh, the President of the Centennial Board of Finance, whose appearance was the signal for the most enthusiastic applause. Several moments elapsed



MISSISSIPPI STATE BUILDING.

before quiet could be restored, and then Mr. Welsh delivered the following address :

FELLOW-CITIZENS:—In this closing scene of the International Exhibition, I may well give expression to the grateful emotions which swell my heart, that all who have shared in the labor of its preparation and conduct, in your approval of it meet their coveted reward.

The predictions of evil which were made of it—and by many in high places—have not been realized. The nation has not been dishonored. The good name of its people has not been imperilled. This day witnesses that the noble purpose of its projectors has been accomplished.

It has hallowed the Centennial year by an inspiration of the past. The circumstances attendant on the nation's birth have been recalled. The patriotic impulses of the people have been quickened. Their love for their country has been strengthened.

The Exhibition has concentrated here specimens of the varied products of the United States, and made better known to us our vast resources.

It has brought to us the representatives of many nations—men skilled, accomplished and experienced—and they have brought with them stores of treasures in all the forms given them by long-practised industry and art. And others are here from new lands, even younger than our own, giving full promise of a bright and glorious future.

It has placed side by side, for comparison, the industries of the world. In viewing them the utilitarian revels in the realization that man is striving earnestly to make all things contribute to his convenience and comfort; the philosopher stands in awe at their contemplation as he dwells upon the cherished thought of the possible unity of nations; and he who looks on the grandeur of the scene from a spiritual standpoint is filled with the hope that the day is near “when the glory of the Lord shall cover the earth as the waters cover the sea.”

It has taught *us* in what *others* excel, and excited our ambition to strive to equal them.

It has taught others that our first century has not been passed in idleness, and that, at least in a few things, we are already in the advance.

It has proved to them and to us that national prejudices are as unprofitable as they are unreasonable; that they are hindrances to progress and to welfare, and that the arts of peace are most favorable for advancing the condition, the power and the true greatness of a nation.

It has been the occasion of a delightful union among the representatives of many nations, marked by an intelligent appreciation of each other, rich in instruction and fruitful in friendships.

It has placed before our own people, as a school for their instruction, a display—vast and varied beyond precedent—comprising the industries of the world, including almost every product known to science and to art.

It has made the country and its institutions known to intelligent representatives of all nations. They have had access to our homes, have become familiar with our habits, have studied our systems of



COMMUNION SERVICE, "GORHAM PLATE," EXHIBITED BY THE GORHAM MANUFACTURING COMPANY, IN THE MAIN BUILDING.

education, observed the administration of our laws, and will hereafter understand why the United States of America exerts so large an influence on other nations, and, consequently, the great truth that in proportion to the intelligence and freedom of a people is their loyalty to their government.

It has concentrated on this spot, in the short term of six months, eight millions of visitors, who have enjoyed all its rare privileges

without a disturbance or any personal hindrance from violence or even rudeness.

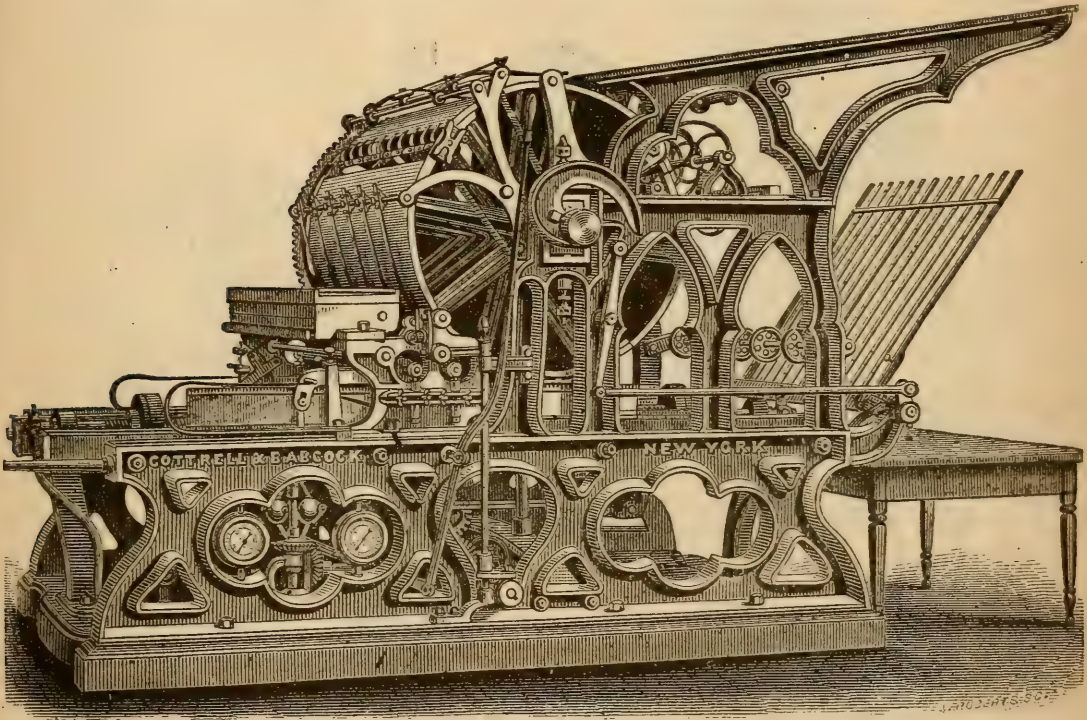
It has exhibited the American people in their true character, respectful of each other's rights, considerate of each other's convenience, and desirous of allowing to others a full participation in their enjoyment.

It has afforded an opportunity to show that the administration of an exhibition on a grand scale may be liberal in its expenditure without useless extravagance; that its laws may be strictly enforced with impartiality and without harshness; that its regulations may secure the efficiency of its departments and uniformity in their action; that its whole course has been free from financial embarrassment or even a payment deferred; and that, notwithstanding every part of its machinery was in constant motion, no one of the immense throng within the limits of the Exhibition was sensible of its restraint.

It has shown that the authorities of the great city in which the Exhibition has been held have been actuated by a single eye to the promotion of the public convenience. That, under their supervision, facilities of every kind have been provided, property has been protected, good order has been preserved, unusual health has prevailed, and extortion in its varied forms has been almost unknown; these, combined with the unlimited accommodations for visitors and the hospitality of its citizens, are in beautiful harmony with the purposes of the Exhibition. Nor has the State of Pennsylvania been less in sympathy. The traditions connected with its soil are its priceless heritage.

The International Exhibition is to be regarded as a reverential tribute to the century which has just expired. That century has been recalled. Its events have been reviewed. Its fruits are gathered. Its memories are hallowed. Let us enter on the new century with a renewed devotion to our country, with the highest aims for its honor and for the purity, integrity and welfare of its people. On the Exhibition the curtain is now about to fall. When it has fallen, the wonderful creation, in the beauties of which we have so long been revelling, will have passed away. Looking round upon it now, while the scene still glows with its grandeur, and our senses are rejoicing in its delights, I desire to assure all who have contributed towards its production that there is at least one who bears in

grateful remembrance whatever they have done. It may have been an humble prayer, the earnings of hard toil, out of their abundance, or the devotion of years of intelligent labor—it matters not. The little brooks and the rivers alike make up the mighty ocean. To all—at home and abroad—who have helped us forward; to the Sovereigns and Governments of other countries who have countenanced and encouraged us; to their representatives who have worked so nobly in our cause; to the exhibitors of our own and other lands, who have done more than can be expressed; to the Congress of the United States of America, for its generous and



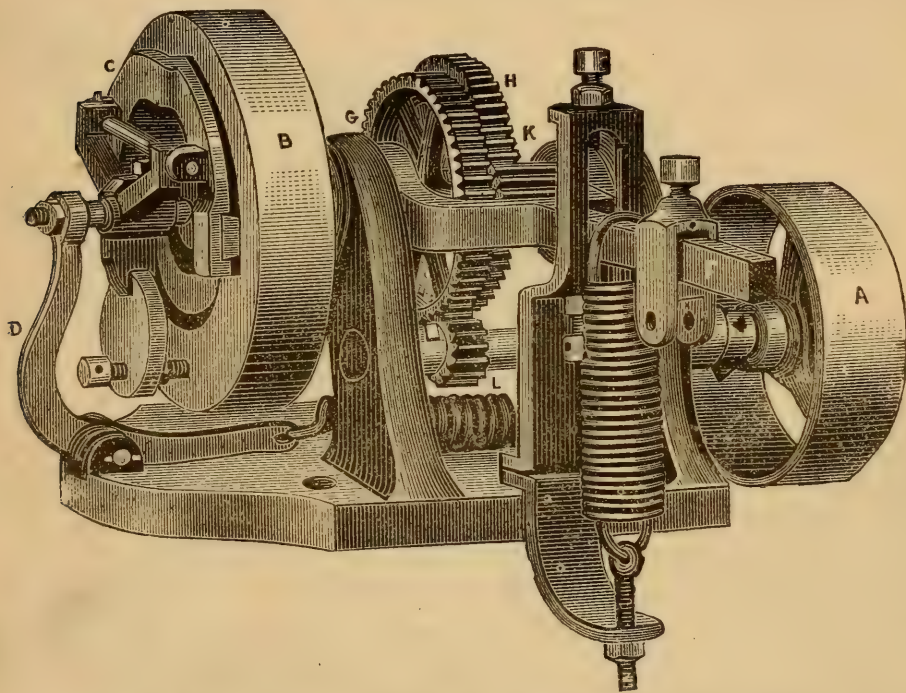
DRUM ROLLER PRINTING PRESS, EXHIBITED BY COTTRELL & BABCOCK.

timely aid; and especially to the President of the United States of America, for his unwavering support and encouragement, are due the grateful acknowledgments of the nation. Would that I were authorized to make such acknowledgments here, or that my own had the value in them to make them acceptable to them all, from the humblest to the highest.

And now, to my fellow-laborers of the United States Centennial Commission, and of my more immediate associates in the Centennial Board of Finance, I need only say that our work has its place

in the annals of the nation. If the memories of it be pleasant to our countrymen, we have done well.

During this address Mr. Welsh was frequently interrupted with applause, and this was continued after he took his seat. The orchestra then rendered Beethoven's beautiful "Sixth Symphony." The Hon. A. T. Goshorn, Director-General of the Centennial Exhibition, was next introduced, and spoke as follows:



THE RUNQUIST OSCILLATING GOVERNOR, EXHIBITED IN MACHINERY HALL.

MR. PRESIDENT:—The bright sunlight that came last May to greet the opening hour of the International Exhibition of 1876 was a propitious omen. Those who had labored from its inception to place before the world in a proper manner an enterprise in which great expectations and interests were concentrated were encouraged and strengthened in this work. It has since prospered, and won the favor of general commendation.

Millions of people have come hither to enjoy the teachings of a school that has laid the foundations for more liberal thought and for more extended knowledge of the social, industrial, and political

elements that contribute to the welfare of man. The beneficial results that will ensue from these teachings cannot be over-estimated.

The Exhibition has been a great educator. It has given the people of other nations new and correct ideas of the resources and industries of America. It has given the people of America enlarged information of the arts, products, and wealth of the participating nations. It has also augmented and strengthened social and commercial relations between nations which are results of high importance, and may be considered a happy consummation of the objects of this international work.

Had it accomplished less than this, it would have failed of the hopes of its projectors.

But the hour has arrived when we must dismantle these buildings and take our departure.

Having been for almost four years intimately connected with the internal and external administration of this work, I feel that we have abundant cause for congratulation that the close of our labors terminate in the midst of a success that is manifestly satisfactory to our country and approved by the patriotism of our people. In

this great undertaking we have had from the beginning the zealous co-operation and faithful services of both the officials and the exhibitors in the various departments, to whom we are pleased in this manner and on this important occasion to acknowledge our indebtedness.

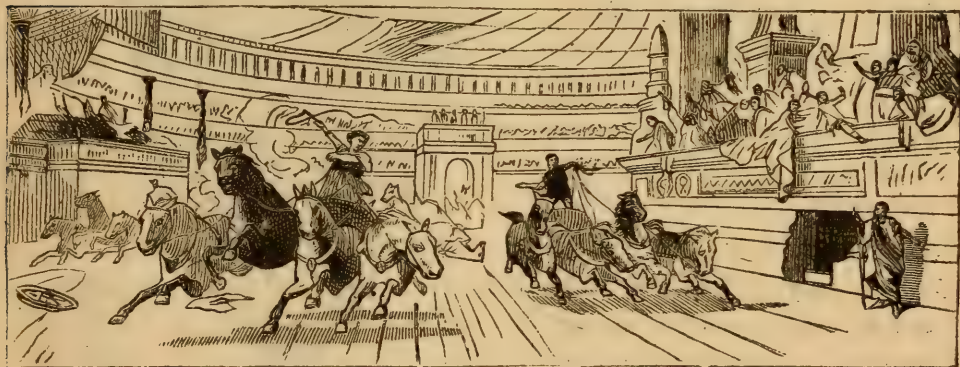
To our friends, the foreign commissioners and foreign exhibitors, I am glad of another opportunity to express and repeat our most cordial greetings and thanks for the valuable part they have taken



SILVER FLOWER VASE, REPOUSSE WORK,
EXHIBITED BY THE GORHAM CO.

in this Exhibition. Without such co-operation it would not have obtained the dignity and interest which has so profoundly affected the people of the United States. Your presence, gentlemen, has been accepted by the people of this country as a mission of international good-will and fraternal intercourse. I pray you, therefore, to carry with you a conviction of the appreciation and friendly feelings of the government and the people towards you for your honorable and successful co-operation.

I also have the pleasure to congratulate my fellow-citizens, the exhibitors from the United States. You have contributed abundantly of the rich products of the soil and mines, and of your own ingenious and skilful workmanship. You have won fresh honors in every department, and have revealed and made better known to



WAGNER'S CHARIOT RACE, IN MEMORIAL HALL.

our own people and to the world your strength and progress, and the vast resources at your command. Your contributions and intelligent co-operation entitle you to claim a large share both of the credit and benefits of this Exhibition.

If the influences of this Exhibition should discourage all inclinations to the showy and superficial, and elevate the standard of quality and workmanship, and thereby add to the intrinsic merits and values of our products, it will produce its legitimate results and justify the expenditures of thought and treasure that have been lavished upon it.

But I cannot conclude without alluding to the efficient and faithful work of my co-officials, and of my personal staff, which commands my highest acknowledgments of respect and esteem.

The amount of labor and thought which has devolved on you,

gentlemen, can never be known, nor need it be. We have our record in the consciousness of the confidence placed in us, and in the support we have always received from the United States Centennial Commission and Centennial Board of Finance, and from the numerous contributors, here and elsewhere, who laid the foundation of this Exhibition, and from the public.

And now, Mr. President, with the close of this day another International Exhibition will be concluded and added to the records of the past. But it will not be ended; it will rather have only begun. The real Exhibition we have striven for is not limited to the display of material products, which, however pleasing, must be brief. The teachings, the social and moral influences, the improvement in the productive powers of genius and inventive knowledge, constitute in part the object and aim. May these be fully realized as the legitimate results of this Exhibition.

As the Director-General concluded, chorus and orchestra burst forth in the glorious "Hallelujah," from Handel's "Messiah." At the conclusion of the chorus General Hawley arose, and after the enthusiastic applause with which he was greeted had subsided, spoke as follows:

The final day of the Exhibition has arrived. Four years and a half ago the Centennial Commission was organized under the legislation of the national government to celebrate the Centennial Anniversary of our national independence by holding an international exhibition of arts, manufactures, and products of the soil and mine. The National Congress deemed it fitting that the completion of the first century of our national existence should be commemorated by a presentation of the national resources of the country and their development, and of the progress in those arts which benefit mankind, in comparison with those of older nations.

Happily the United States was and is at peace with the whole world. International Exhibitions have become an established feature in modern civilization, but connected with this were features of peculiar and local interest. They have not interfered with its progress—indeed, the acceptances of other nations, and the very friendly congratulatory letters addressed to the President of the United States on the occasion of the celebration of the Fourth of July, show that they have rather given an opportunity for expressions of cordial good-will that have given very great pleasure to

the whole American people. There were many and great difficulties in the path of the enterprise, the usual misapprehensions, the disturbed condition of the business and finance at home and abroad and the slow conversion of a public sentiment which, in the earlier days, feared that justice might not be done to American resources and capabilities. We recall the hours of uncertainty and discouragement solely that we may felicitate ourselves upon the result that have answered the hopes and predictions of the most sanguine.

The Exhibition has given us a better comprehension of our own position and progress. We expected and hoped to be taught our shortcomings in some respects, and we shall profit by the lessons. And yet I gather from my countrymen that they are not a little pleased to see how well our productions in every department have borne the comparison to which they have been subjected.

Unquestionably international trade and commerce will be promoted. Our manufacturers, mechanics and artists will show by their work that they have been close students of the admirable exhibits from abroad, and have taken advantage thereby. The ingenuity and excellence of our mechanics and inventors will be made better known. A higher benefit has been wrought. The bonds of peace have been strengthened. Interminable ties have been created that will be strongly felt whenever national derangements are threatened. Our people are so widely scattered, and their relations have been so seriously disturbed, that every patriot anxiously desired them to seize the great occasion to know each other better that they may love each other more. What has been done toward this is one of your most valuable labors. The concurrent and almost wholly harmonious testimony of our critics at home and abroad permits us to feel that we have been on the whole largely successful in all our work. This commendatory judgment is very grateful to us.

My associates have given expression to our gratitude. I would gladly add to what they have said if I could. The Commission thanks the city of Philadelphia, the State of Pennsylvania, the National Government, and especially you, sir, our honored President. It thanks the foreign commissioners, one and all, most heartily. It thanks the exhibitors of all nations. It thanks the American people, whose conduct here has commanded unbroken respect.

It thanks its associate corporation, the Board of Finance; above

all, it reverently acknowledges the kind favor of Heaven which has so smiled upon us that while we turn somewhat sadly from these scenes of great labor and greater pleasure, all who have been accredited here may feel they have done something towards advancing the world to the better day coming. God be praised for the past; God send us all, individuals and nations, a happy future. Mr. President, we await your pleasure.

At the conclusion of General Hawley's address the audience and chorus united in singing the national anthem, "My country, 'tis of thee," the full orchestra accompanying the voices. Never was the sweet hymn sung with more patriotic fervor than then given, for as the simple yet majestic melody filled the air the original flag of the American Union, first displayed by



MAKART'S "VENICE DOING HOMAGE TO CATHARINE CORNARO," IN MEMORIAL HALL.

Commodore Paul Jones on the "Bon Homme Richard," was unfurled from a window above the stage, and as its hallowed folds floated in the air all eyes gazed upon the relic with reverence, and while a thousand throats sang "America" with still deeper feeling, all present united in applauding by a brisk clapping of hands this most happy addition to the programme. At twenty-three minutes of four o'clock General Hawley announced that General Ulysses S. Grant, President of the United States, would now formally close the Exhibition. The President here arose and said:

"LADIES AND GENTLEMEN:—I have now the honor to declare the Exhibition closed."

The President then turned to the left, and waved his hand as the signal to the operator at the telegraph instrument, immediately behind him, to give the signal for stopping the Corliss engine and the machinery in the hall. Mr. Robert B. Manley, the general director, touched the key, and the characters "7-6" were signalled to the main telegraph office. The same current caused the hammer to strike the special gong stationed alongside the Corliss engine, which was the signal to stop, and at the same time all the gongs in the Machinery Hall felt the effect of the electrical current, and gave notice to the exhibitors that the official fiat of the President, that the Exhibition had been declared closed, was promulgated. At the instant the instrument ticked in the main telegraph office, the following despatch was placed on the wires and sent to London, Liverpool, Paris, and the principal cities of Europe, the United States, and Canadas:

INTERNATIONAL CENTENNIAL EXHIBITION GROUNDS.

PHILADELPHIA, *November 10, 1876.*

The President has this moment closed the International Exhibition—3.37 P. M.

W. J. PHILLIPS, Telegraph Director,
U. S. International Exhibition.

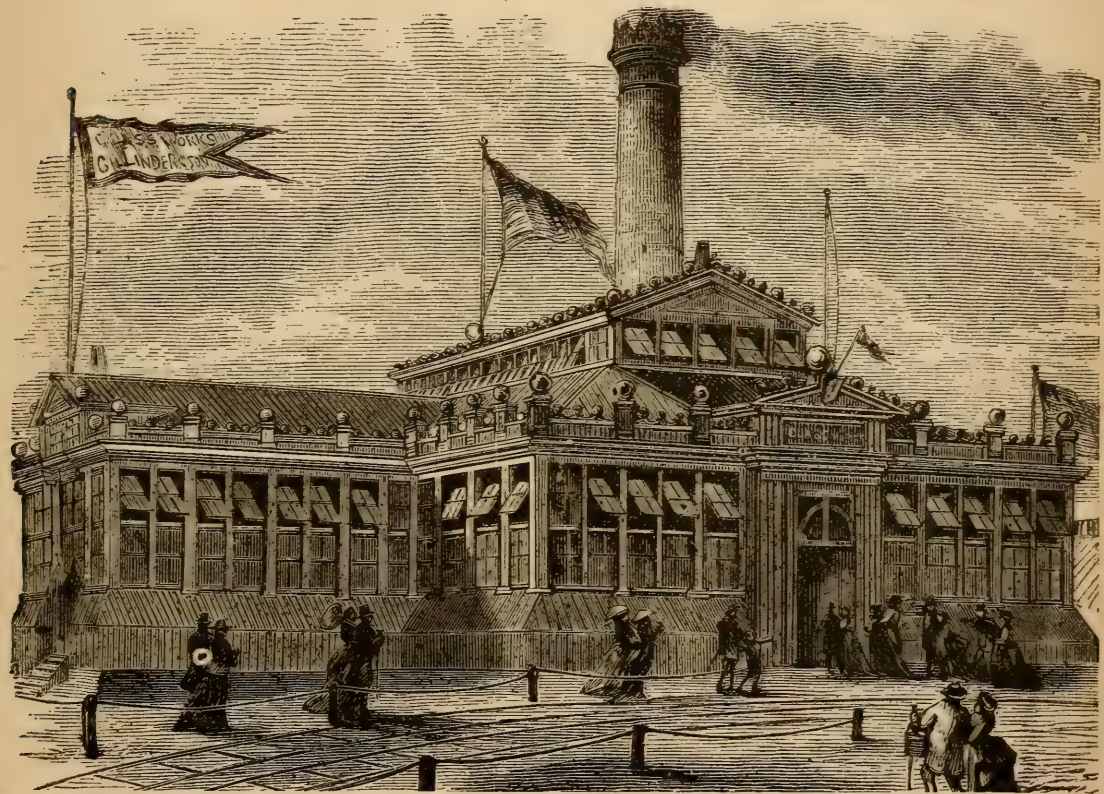
All present then united in singing the long metre doxology to the words,

"Be Thou, O God! exalted high,
And as Thy glory fills the sky,
So let it be on earth displayed,
Till Thou art here as there obeyed."

And soon afterwards the assemblage dispersed. A large crowd gathered about the pavilion to witness the departure of the President, who stepped into his carriage at about four o'clock, and drove back to the residence of his host, Mr. George W. Childs. Though the Exhibition was thus formally closed, only a small proportion of the exhibits were covered up, and the grounds remained thronged with visitors until evening.

Machinery Hall was the objective point of not less than

15,000 persons at about two o'clock, at which hour it was believed the President would punctually appear in front of that mighty giant of mechanical skill, the Corliss engine, and seizing the lever, stop the motion of the colossus. In this speculation just so many individuals were disappointed, notwithstanding which they held their places, or passed through the mazes of the intricate workshop. Machinery Hall at three o'clock was packed with impatient humanity. A sea of upturned faces looked in the direction of the iron and steel giant which controlled the



GILLINDER & SONS' GLASS WORKS IN THE EXHIBITION GROUNDS.

ceaseless revolving wheels, the whirring belts, and the noisy operation of the perfect labyrinth of mechanism. Never before in the history of the Centennial Exposition had there been such a jam of nervous, anxious, and interested observers. It was to be the culminating and at once the finishing point in America's great exhibit. The great engine seemed more energetic than ever. Its walking beams seemed to move with more rapidity,

and the monster wheel appeared to revolve the more quickly as if conscious of the fact that it would soon rest from its labors. Yet, though fancy or imagination pictured the grim colossus as working harder than ever, its movement was almost noiseless. The sewing-machines with their busy hum drowned the laborious efforts of the giant. Thus the work continued, and still the crowd began to thicken. All awaited the President's coming, but they were doomed to disappointment. The hand of the clock pointed to four o'clock. It lacked but a few minutes of the hour. At this moment two engineers took their position near the lever of the engine, and their eye rested on the gong which was to notify them when to apply the subtle touch which should end the work of the machinery, and signal the closing of the Centennial. A moment later the silvery peal of the gong, touched by an invisible wire, gave the word, and in a second the Corliss engine had ceased its operations and rested. This was the occasion for rapturous applause, oft repeated. A change had passed over Machinery Hall. The throbbings of the great leviathan had ceased, and with them the pulsations of all other machinery, and the twenty-three miles of shafting and forty odd miles of belting.

The total number of paying visitors on the closing day was 106,474.

CHAPTER XXVIII.

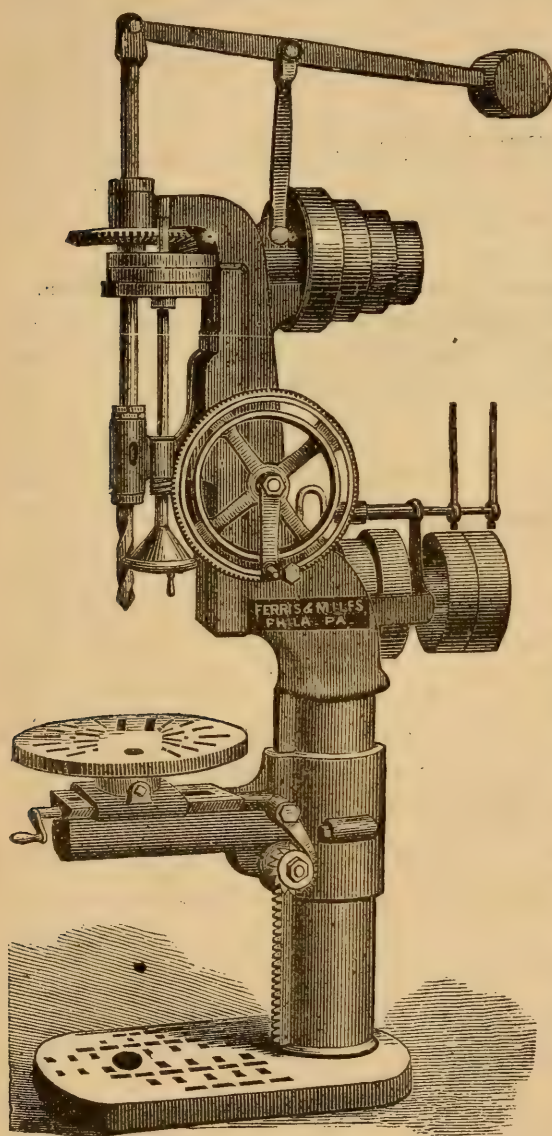
STATISTICS OF ATTENDANCE.

Causes of the Early Indifference of the People Towards the Exhibition—Gradual Increase in the Attendance—Statement of Admissions—The Receipts—The State Days—Other Noted Days—Comparison of the “Centennial” with Other Exhibitions—Statement of Exhibitors.

LOOKING back over the six months' career of the Great Exhibition one striking fact presents itself—that the Exhibition had to make its way slowly into public comprehension and favor. The American people had little knowledge of what a World's Fair really was, and asked themselves the question, “Will it pay to go to the Centennial?” many times before they decided to go. There was an ignorance and an indifference throughout the country concerning the grand undertaking that threatened to mar its success. With a few notable exceptions, the leading newspapers outside of Pennsylvania threw cold water upon the Exhibition, and the public had to get its impressions from the papers. Certain influential journals in the West did not wake up to their mistake until the fair had been three months in progress, and only at that late date sent their correspondents to the Exhibition and began to publish descriptive letters. On the opening day Philadelphia furnished nine-tenths of the visitors. There were 76,172 paying admissions—a very fair beginning—but the attendance fell next day to 14,722, and the day after to 10,252. On the 16th of May it was only 7,056. The highest figure reached in that month was 41,111, on the 30th, and the average for the month was 19,946. Thus far the visitors were nearly all from Philadelphia and the neighboring

towns. The pleasant days of June went by without the attendance showing any adequate appreciation by the public of the manifold attractions of the fair. The highest attendance

was 39,386, the lowest 20,343, and the average 26,756. By the end of the month the glowing accounts of returning visitors, few in number though they were, had leavened the whole lump of public indifference and created a general desire among all classes to make a pilgrimage to Philadelphia. The ceremonies on the Fourth of July brought a numerous multitude in spite of the severe heat that prevailed. On the 3d the paying visitors numbered 47,786, on the 4th 46,290, on the 5th 51,825, and on the 6th 46,088. Then the attendance ran down rapidly, so that on the 31st it was only 15,207. The average for the month was 24,481. The heated term was of unprecedented length and severity. It began in



UPRIGHT DRILLING MACHINE, EXHIBITED
IN MACHINERY HALL.

June and lasted until late in August. The Exhibition buildings were like ovens, and the concrete paths through the grounds burned the feet like lava. Every day many visitors were prostrated and carried to the hospital. Thousands came in spite of

the heat, however, because their midsummer holiday was their only opportunity. In August the largest attendance was on Jersey Day—55,930; the smallest was 22,141, and the average 33,655. September brought the hoped-for throng. On the 1st, 34,182 visitors entered the gates; on the 5th, 50,209, and except on one rainy day the total never dropped below 50,000 thenceforth. Connecticut Day, the 7th, scored 64,059; Massachusetts Day, the 14th, 78,977; New York Day, the 21st,



BRAZILIAN GOVERNMENT BUILDING.

117,941; and Pennsylvania Day, the 28th, brought the enormous number of 257,169 people within the grounds. The average for the month was 81,961. In October the average ran up still higher, being 89,789; the lowest figure was 65,865, and the highest, reached on Delaware and Maryland Day, the 19th, was 161,355. Rhode Island Day, the 5th, registered 89,060; New Hampshire Day, the 12th, 101,541, and Ohio Day, the 26th, 122,300. During November the attendance was close upon 100,000 every day.

The record of admissions by months is as follows :

Months.	Days.	Paid.	Total.	Receipts.
May.....	19	378,980	*613,495	\$189,490.35
June.....	26	695,666	952,177	347,833.40
July.....	26	636,518	906,447	318,199.25
August.....	27	908,684	1,175,314	415,659.25
September....	26	2,130,991	2,439,689	928,056.00
October.....	26	2,334,530	2,663,879	1,160,811.50
November....	9	918,956	1,038,391	453,700.00
	<hr/> 159	<hr/> 8,004,325	<hr/> 9,789,392	<hr/> \$3,813,749.75



"OLD VIRGINIA" BUILDING.

A recapitulation of the above shows the following :

Number of days open.....	159
Paid admissions.....	8,004,325
Free admissions.....	1,785,067
Total admissions.....	9,789,392
Grand total of receipts.....	\$3,813,749.75

The State Days.

The State day celebrations at the Exhibition are conspicuous in the records of the admissions as the best paying days. The

* Including 110,500 officially estimated free admissions on Opening Day.

following is a complete list of these days, with the cash and total admissions and receipts:

	Paid.	Total.	Receipts.
New Jersey, August 24.....	56,325	67,052	\$28,063.75
Connecticut, September 7.....	64,059	75,044	30,853.75
Massachusetts, September 14....	85,795	97,868	41,193.00
New York, September 21.....	122,003	134,588	59,986.00
Pennsylvania, September 28.....	257,169	274,919	118,673.75
Rhode Island, October 5.....	89,060	100,946	44,496.00
New Hampshire, October 12....	101,541	118,422	50,536.00
Delaware and Maryland, Oct. 19.	161,355	176,407	80,367.50
Ohio, October 26.....	122,300	135,661	61,029.50

Other Noted Days.

The following are some of the other large days during the Exhibition period:

Paying Visitors.		Paying Visitors.	
Opening Day.....	76,172	October 27.....	95,563
September 9.....	99,984	November 1.....	107,715
September 20.....	101,498	November 2.....	115,298
September 30.....	103,385	November 8.....	90,588
October 18.....	124,777	November 9.....	176,755
October 25.....	106,986	November 10.....	106,474

Attendance at other Exhibitions.

The attendance at the various International Exhibitions preceding our own, show the following comparison:

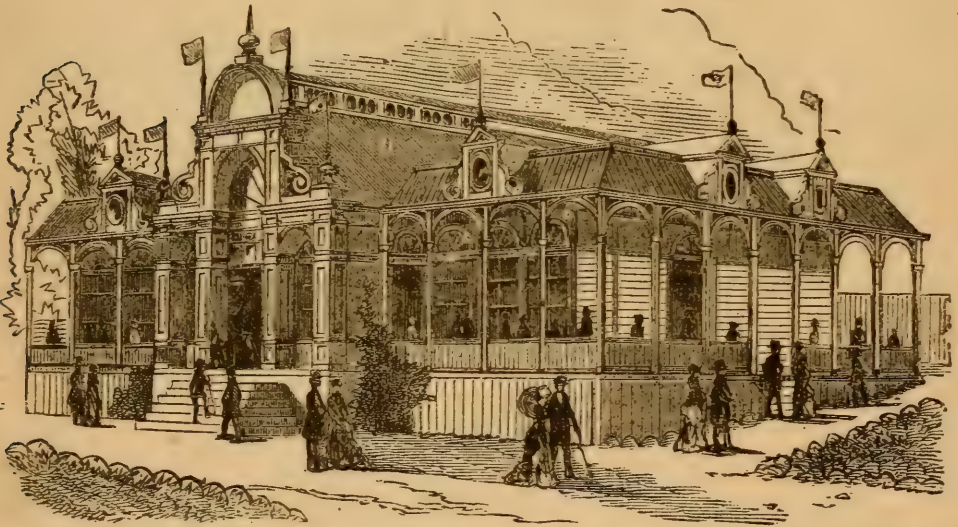
Year.	Place.	Days Open.	Visitors.	Receipts.
1851—London		141	6,039,195	\$2,120,000.00
1855—Paris.....		200	5,162,330	640,497.00
1862—London.....		171	6,211,103	2,044,650.00
1867—Paris.....		210	8,806,969	2,103,675.00
1873—Vienna.....		186	7,254,687	1,032,090.00
1876—Philadelphia.....		159	9,789,392	3,813,749.75

In the case of all the European Exhibitions, the greatest day was either the closing one, or near it, and at Paris and Vienna the greatest number of visitors was on Sunday. The

greatest attendance on any one day at previous Exhibitions, as compared with "Pennsylvania" Day here, is thus given :

Philadelphia.....	257,286, on Thursday, September 28, 1876.
Paris	173,923, on Sunday, October 27, 1867.
Vienna.....	135,674, on Sunday, November 2, 1873.
Paris	123,017, on Sunday, September 9, 1855.
London.....	109,915, on Tuesday, October 7, 1851.
London.....	67,891, on Thursday, October 30, 1862.

The total number of exhibitors in the Centennial Exhibition reached 30,864, and were distributed among fifty countries of



PHILADELPHIA CITY BUILDING.

the world. The United States headed the list with 8,175 exhibitors; Spain and her colonies came next with 3,822; Great Britain and her dependencies sent 3,584 exhibitors; and Portugal stands fourth with 2,462.

The classification embraces seven different departments, among which the exhibitors are distributed as follows, the first column giving the number of exhibitors in each department from the United States, and the second column the number in each department for the entire Exhibition :

Departments.	American Exhib's.	Total Exhib's.
1—Mining and Metallurgy.....	644	2,129
2—Manufactures	2,246	8,760
3—Education and Science.....	381	2,490
4—Art.....	1,784	4,900
5—Machinery.....	1,606	2,260
6—Agriculture.....	1,474	10,217
7—Horticulture.....	40	108
Total.....	8,175	30,864

Previous to 1851 there had been numerous national exhibitions in different European cities, some of which brought together a very considerable number of exhibitors. In all of these national affairs France kept the lead in the number of exhibitors, there being 2,447 exhibitors in that held in 1834; 3,381 in 1859; 3,960 in 1844; and 4,494 in 1849. The only national exhibition held outside of France which approached these figures in the number of exhibitors was that held in Berlin in 1844, in which all the different countries of Germany were represented, the number on that occasion reaching 3,040.

The following statement gives the total number of exhibitors, and the number of American exhibitors at each of the International Expositions which have been held since the system was inaugurated in 1861 at London:


	American Exhib's.	Total Exhib's.
1851—London.....	499	13,937
1853—New York.....	2,083	4,685
1855—Paris.....	144	20,839
1862—London.....	228	28,653
1867—Paris.....	705	42,217
1873—Vienna.....	922	.....
1876—Philadelphia.....	8,175	30,864

We have not at hand the total number of exhibitors at Vienna, but leaving that out, it will be seen that the number at Paris largely exceeded that at our own Exhibition, while it in turn surpasses the two London Expositions and the Paris Exposition of 1855.

CHAPTER XXIX.

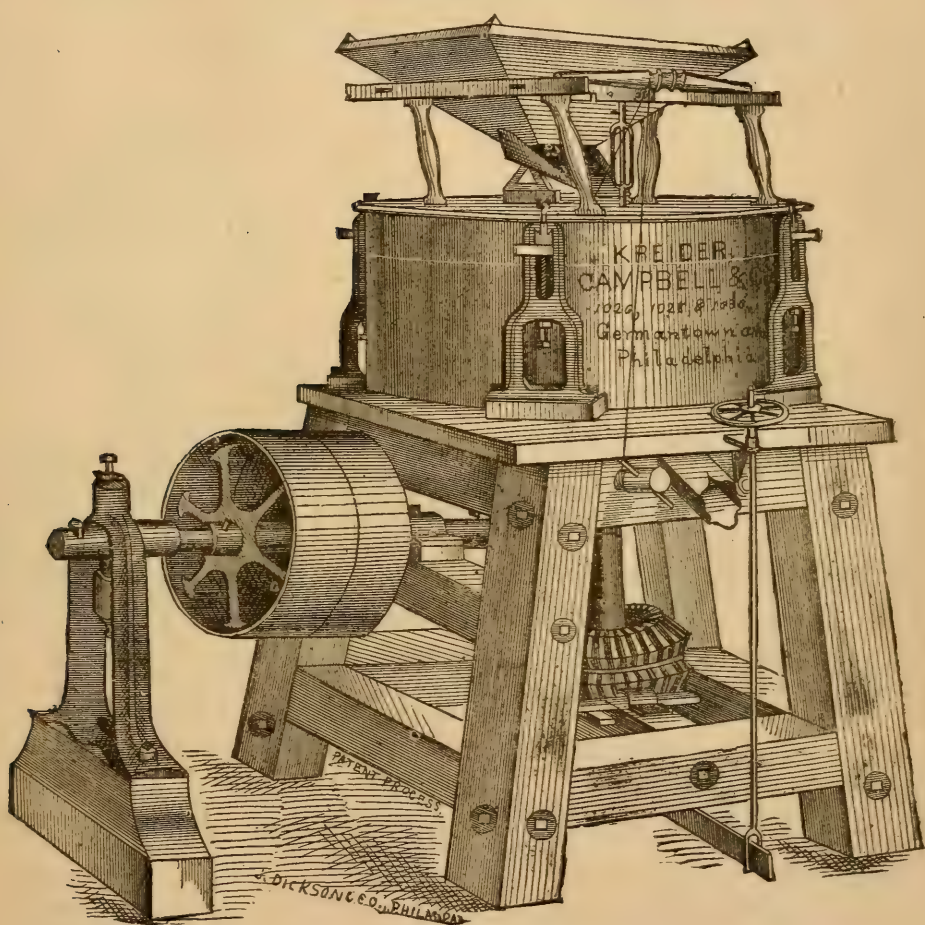
WHAT WAS ACCOMPLISHED.

Benefits conferred upon the American People by the Exhibition—Effects upon Foreign Nations—Views of General Hawley—What Director-General Goshorn Thinks the Exhibition has Accomplished—Views of President John Welsh—Statements of Mr. John Sartain, Captain Albert, Mr. Burnett Landreth, Mr. Miller, and General Francis A. Walker Concerning their Respective Departments.

HEN we come to estimate the results of the great Exhibition we are at a loss to say how far-reaching they may be. It is certain that as a nation we have gathered a rich harvest of culture and of material benefits, and that through the influence of the Exhibition abroad we have acquired a recognition, never before accorded us, as a country of the most diversified and active industries, and the highest civilization. The culture obtained by the millions of our people who have found in the fair a mine of information and suggestion, must have a beneficial effect upon the national character. A tour through the halls and grounds was like a journey around the world, giving an insight into the life and thought of all manner of men, and lifting the visitor above the narrow limits of his surroundings, so that his horizon stretched out to embrace the whole human race. Bigotry, conceit, and local pride vanished as the great panorama of the achievements of mankind, of all races and in all climes, passed before his eyes. Apart from this general and cosmopolitan culture in which all participated, each found valuable fruits of knowledge adapted to his own need. The farmer saw new machines, seeds, and processes; the mechanic, ingenious inventions and tools, and products of the finest workmanship; the teacher, the

educational aids and systems of the world ; the man of science, the wonders of nature and the results of the investigations of the best brains of all lands. Thus each returned to his home with a store of information available in his own special trade or profession.

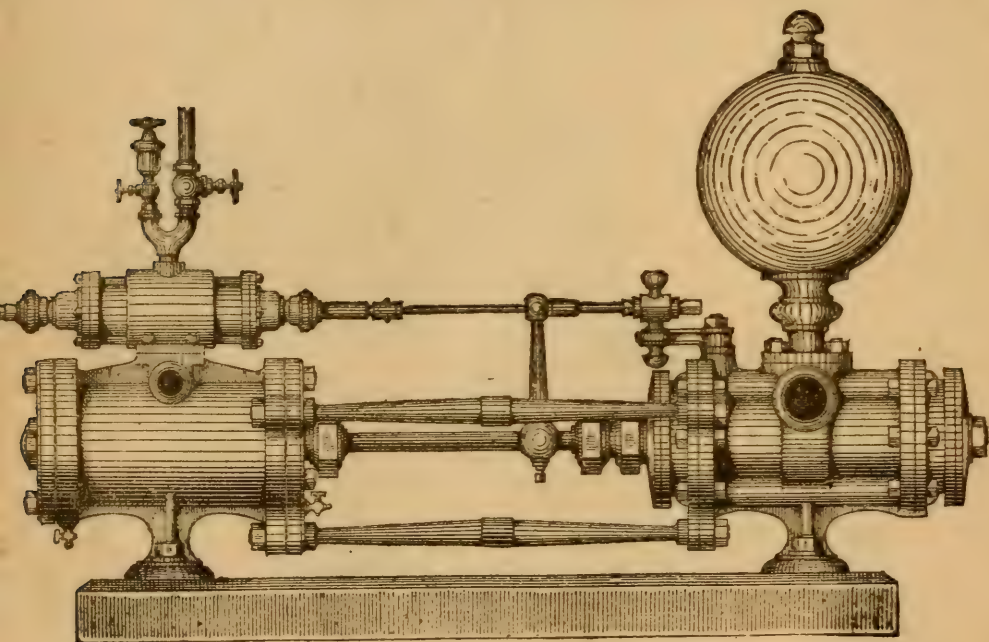
The material benefits accruing from the Exhibition are manifold, and will be realized for years to come as well as in the



FRENCH BURR MILL, IN MACHINERY HALL.

near future. An immediate gain is the modification of the rigors of the prevalent hard times. Undoubtedly the setting in motion of millions of people, each with money to spend, has had an effect in breaking the lethargy that has stifled enterprise in the business world and in causing the hopeful begin-

nings of a revival of trade which we have been witnessing this fall. Many improvements in manufactures and the introduction of new branches of industry will soon follow as the result of the study by inventors, skilled mechanics, and men of enterprise of the products of the globe. They have discovered that many articles which we have been buying from other countries can be profitably made here, and that many which we already make can be improved in quality or in the element of taste, or produced at lower cost, so as to command new markets,



STEAM-PUMP, EXHIBITED IN MACHINERY HALL.

and the result will be a still wider development of our national industries.

In the eyes of the nations of the world we have attained a rank never accorded to us before, and this will prove of great material as well as moral benefit. The good opinion of neighbors is as valuable to a country as to an individual. We were regarded as a smart half-cultured people, of immense energy and remarkable ingenuity, but deficient in the higher graces and achievements of civilization, and depending upon the Old World for all finer grades of manufactures. The reports of

foreign commissioners, jurors, journalists, and travellers, all concurring in expressions of surprise and admiration at the excellence of our manufactures, our schools, our railroads, our newspapers, and the soundness of our social life, have greatly modified public opinion abroad, and gone far towards introducing more just views of us. Those who mingled much in foreign circles at the Exhibition know that the astonishment and wonder of our visitors from abroad at our resources and accomplishments was great and universal.

The close of the great Exhibition was naturally a period of congratulation by those who had projected it and carried it through to success. Prominent among those deserving honor was General Joseph R. Hawley, President of the United States Centennial Commission, who from its organization was the head of the legislative body that governed the Exhibition, establishing the system upon which it was conducted, and supervising in a general way its execution. His force of character and enthusiastic devotion to the enterprise enabled him to fuse a rather incongruous body into a homo-



CONELLY'S STATUE OF THETIS, IN
MEMORIAL HALL.

geneous whole, to keep the designs of a few self-seeking and unfit men subordinate to the general unselfish and patriotic purpose of the majority, and to secure on nearly all questions that have arisen a wise decision. As the official head of the Centennial organization on occasions of celebration and cere-



EMBROIDERED SCREEN, EXHIBITED IN THE CHINESE SECTION, MAIN BUILDING.

monies, and in its dealings with Congress and public bodies and dignitaries, his eloquence and zeal were invaluable in exciting interest in the great undertaking and enforcing conviction as to the grandeur and national importance of its aims and results.

On the closing day General Hawley thus summed up some of the results of the Exhibition :

People ask me if the Exhibition has equalled our expectations. I answer by saying that it did not go beyond or even up to our dreams, grand as it is, but that it was better than we had reason to expect a year before it opened. The estimates of the commissioners as to the attendance ran from 5,000,000 to 10,000,000. The paid admissions have been about 8,000,000. So far as the financial side is concerned we have reason for gratification. If the apparent prosperity which prevailed when the enterprise was begun had continued, it is impossible to say how great the attendance would have been. We are well aware that mere extent and multitudes of visitors do not make a great Exhibition, and we but accept the judgment of foreigners and Americans qualified by knowledge of other Exhibitions, when we say that it is the largest, best situated, best arranged, best managed, and most successful Exhibition ever held. We were early met by the objection urged by Charles Sumner and others, that monarchical countries would not take part in an affair which had somewhat of a character of a family celebration of the success of republican ideas, but our invitations were accepted by foreign nations in the kindest spirit, and they evidently exerted themselves to make fine displays. Of course, commercial motives influenced their action, more or less; but it is delightful to believe that something was due to genuine good-will. Uncle Sam appears to be one of the most popular members of the brotherhood of nations.

It must be that such a gathering as we have had here will have large influence upon international commerce and friendship. Reflect that commissioners from thirty governments are making reports of their examinations, and especially on the American features, and that these reports will be published as official documents. In addition, 125 foreign judges, specially qualified by their examinations, are reporting their observations to their countrymen. Furthermore, every newspaper in the world has published descriptions and accounts of the Exhibition, so that, to use a commercial phrase, the United States have been advertised to an immense extent. The world knows a great deal more about us than it ever did before. With scarcely a single exception our foreign guests have manifested satisfaction and pleasure at their stay in the country. Many have had false impressions removed as to the character of our people and their moral elevation. The perfect good behavior of the 8,000,000 visitors is beyond praise. The American people never in the hun-

dred years of their history appeared to so great an advantage as this summer.

In one respect only the Exhibition did not quite come up to our anticipations. We were anxious to see Virginia, Georgia, Louisiana, Texas, and other Southern States with unbounded natural resources present themselves here as Kansas, Colorado, Arkansas, and others have done, and we hoped to see them in general joining more heartily in the social and semi-political features of the year. Maryland, Delaware, Mississippi, Arkansas, Tennessee, and Kentucky, among the Southern States, expended money in assisting to make the Fair, and found their advantage in it. It would have delighted us

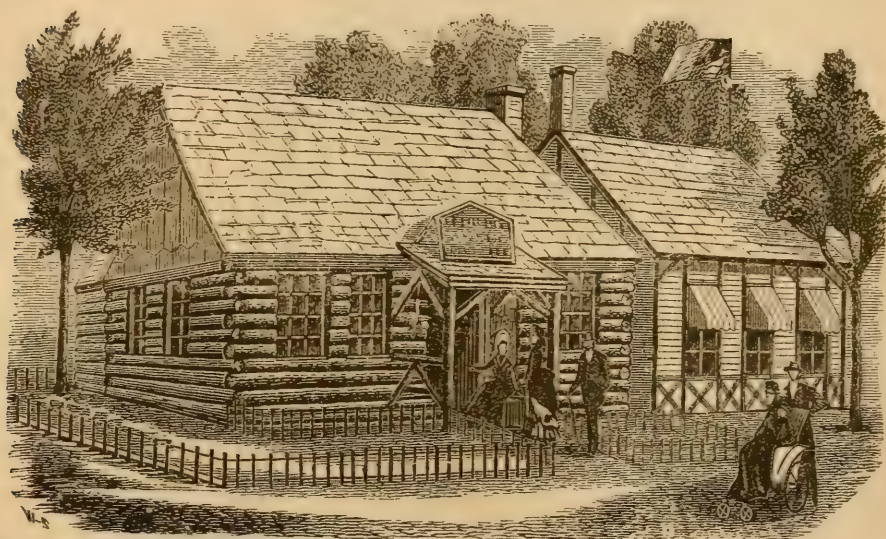


VERMONT STATE BUILDING.

if all had done the same. Had the Governor of Virginia appointed a day for his people to meet here he would have received the warmest greeting he ever saw in his life. The masses of the American people desired to make long strides in the Centennial year toward perfect reconciliation. Divine Providence gave us a splendid opportunity to shake hands. There has been a great deal done, but I wish there had been more. It has been four and a half years since the Commission organized. It has had many dark days. It began with no funds, and with no machinery for raising any. The jealousy of States and localities was very discouraging. The American people two and three years ago were in a fault-finding

mood. It was a time of investigation, criticism, and general dissatisfaction. The press was indifferent or unjustly critical toward the Exhibition project. This was, I am bound to say, because the project proposed to put us before the world in an attitude where we should be closely examined, and there was great skepticism as to whether the Exhibition could be well managed. In the end we gained public confidence, and the press became our warm and indispensable supporter.

I feel great satisfaction in reflecting that we have demonstrated two things—that an almost voluntary association can conduct all the material concerns of such an exhibition with ease and accuracy,

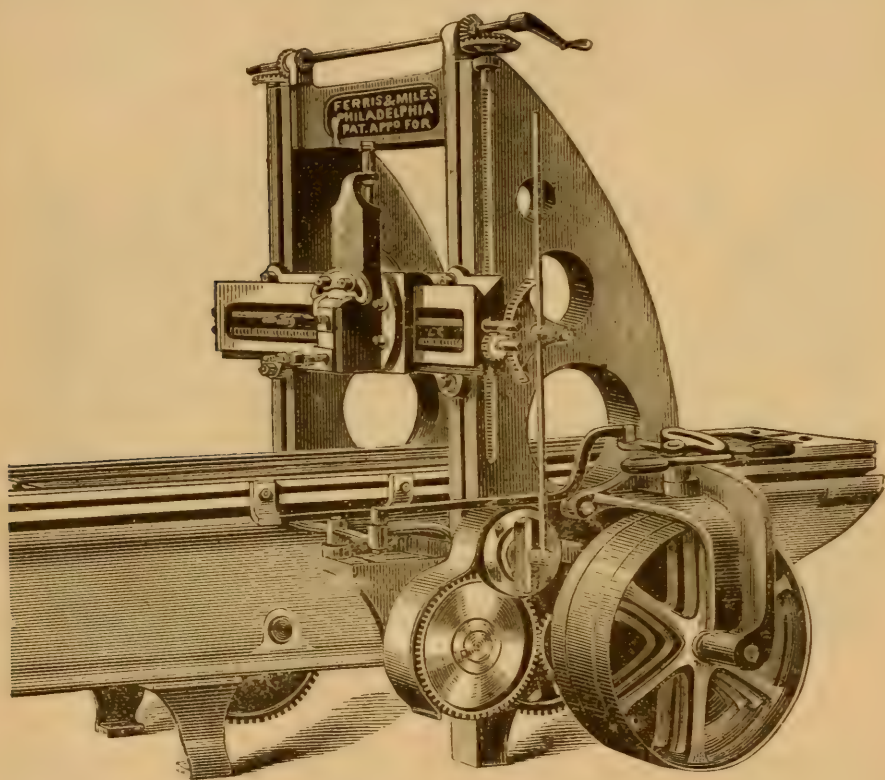


THE NEW ENGLAND LOG CABIN AND MODERN KITCHEN.

and that the enterprise has come to the last day without a single occurrence above microscopic size that could make a scandal if exposed to public view. It is my testimony, after four and a half years' presiding over the Commission, that its members, although selected with no just idea of what their work was to be, have proved to be a very capable and entirely honest body of men. Many of them are gentlemen of rare qualifications and experience. We have labored with a sincere desire to make the Exhibition one that our fellow-citizens would have no reason to feel ashamed of. We are ready to say that we are very proud of our success in the material and moral aspects of the whole enterprise.

Director-General Goshorn was conspicuous among those de-

serving the highest praise of their countrymen for the vigor and ability with which the Exhibition was conducted. He was the Executive Officer of the Commission, and for the excellent organization of the gigantic undertaking and its orderly, methodical and intelligent prosecution, no man deserves more honor than he. Events have shown how adequate were his plans, how admirable his foresight, and how competent his executive



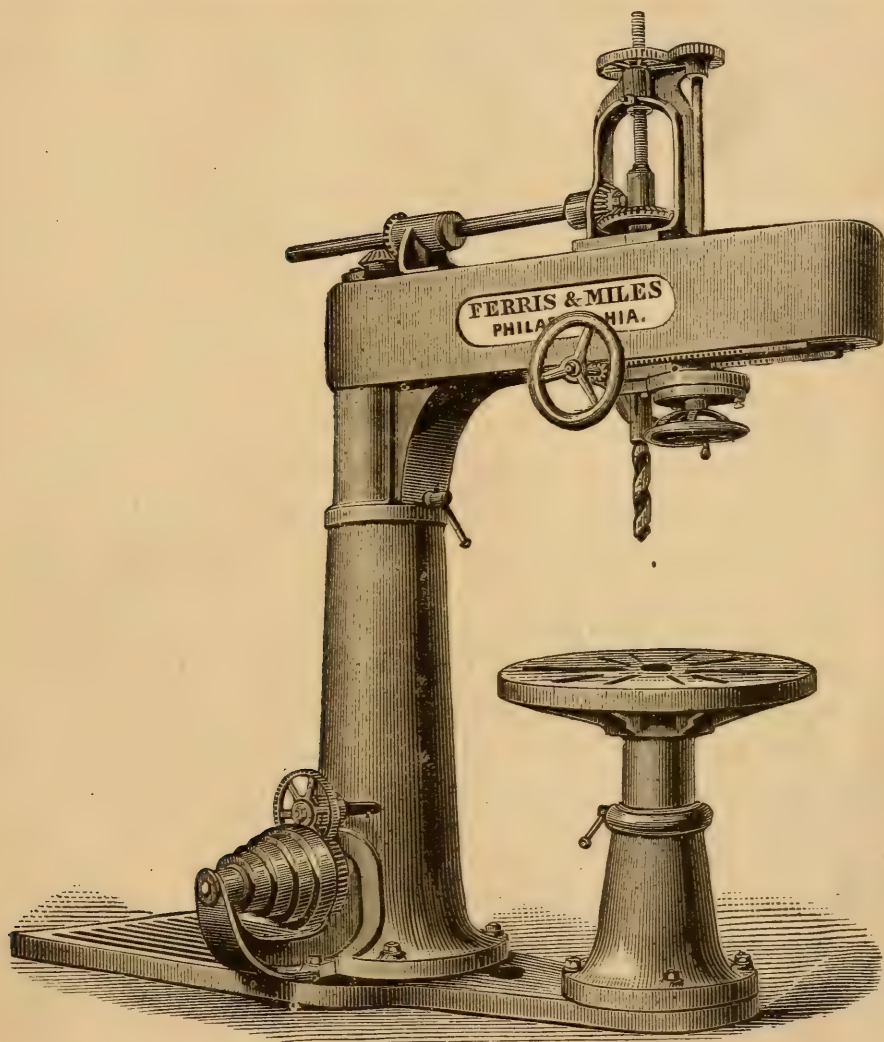
PLANING MACHINE, EXHIBITED IN MACHINERY HALL.

talent to grasp and hold the whole work and make it more than fill the measure of public expectation.

General Goshorn's judgment of the results of the Exhibition is thus stated by himself:

"There has been much less difficulty in the administration of the Exhibition since the opening than I anticipated. A disposition has been shown on the part of exhibitors and visitors to comply with the rules and regulations that has made my work comparatively

light. I feel sure that the Exhibition has run more smoothly than any of the great European fairs. The general rules and regulations were prescribed two years before the opening, and to our credit they remained unchanged to the end. I was engaged for six months in preparing them, and made them liberal with the hope that they



RADIAL DRILL, EXHIBITED IN MACHINERY HALL.

would stand without alteration and meet all emergencies. The attendance has been somewhat larger than I predicted. My estimate was 40,000 a day, and it will run over 50,000. The grand total will exceed that of the Paris Exhibition, which was open a month longer than this and had the advantage besides of nearly a

month of Sundays, on which days the attendance was always the largest. A comparison with the Vienna Exhibition will be found to be much more in our favor.

"All the foreign commissioners were accredited to me, and I gave personal attention to their departments, so that I have had excellent opportunities to know the views of this class. I have heard but one expression, and that a highly favorable one. The commissioners were especially pleased with the regulation which permitted them to arrange the spaces assigned them according to their own ideas. My aim was to give them as much liberty as possible; and I found them at all times entirely willing to coöperate with the general direction. The administration of the customs laws gave them a good deal of annoyance which I could not obviate. The customs officials never comprehended the Exhibition. Instead of regarding it as exceptional and peculiar, they treated it like a retail shop, and tied it up with all the red tape they could apply. Besides, there was a want of harmony between different branches of the customs service which added to the troubles of exhibitors. Foreigners have expressed themselves to me as greatly impressed with the character of visitors, their good order, and their inquiring disposition.

"I think that about sixty per cent. of the goods displayed have been sold, and more will be disposed of during the next few days, so that the commercial side of the enterprise has, so far as exhibitors are concerned, been fairly successful. A good many collections and single articles of value have been generously presented by foreign governments to public institutions like the Smithsonian and the Pennsylvania Museum. I expect to see the exhibition rapidly dismantled. Exhibitors must all be out by the 31st of December, but they will not take advantage of the seven weeks accorded them for removing their goods except in a few cases. The disposition among them is to stop expenses, pack up and be off as soon as possible. The foreigners are in even more haste to get home, and have made arrangements for early transportation of their articles.

"As to the awards, my opinion is that our system has proved to be a good one, but for its entire success it requires, for judges, experts peculiarly fitted to make examinations and write reports. Whenever we had such in any group the result was satisfactory. One serious error was committed. As the reports came in they should have been looked over by the Executive Committee, and such as

did not correspond with the system should have been returned to the judges for correction. This was not done, and the whole mass of 12,000 reports was laid before the Commission after the judges had scattered to the four quarters of the globe. However, I can say this about the awards—there never was an exhibition where there was so little complaint about them. This is because like articles were not examined in competition with each other to determine their comparative excellence, but the awards are made for merit.

“I should have added that my system of dividing the labor and responsibility among the chiefs of bureaus, giving them full control over the details, and holding them responsible for the general results in their several departments, has had very gratifying results. This plan, adopted before the opening of the Exhibition, has remained without change.”

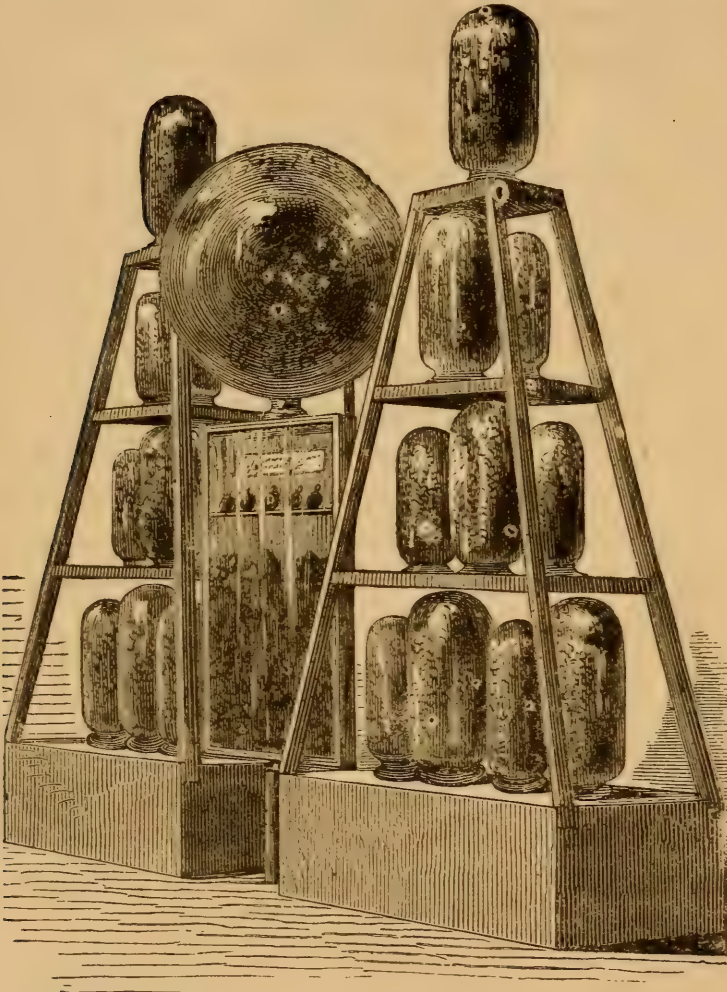
A large share of the credit for the successful issue of the Exhibition belongs to Mr. John Welsh, the President of the Centennial Board of Finance, who, in connection with his colleagues in the board, managed its finances with extraordinary sagacity and energy, and with an economy nicely balanced by the liberality required for the full realization of the project. In a word, Mr. Welsh applied to the Exhibition the principles upon which he would have conducted an important business enterprise confided to his care. He and his associates regarded it as a trust and not as a speculation, and they felt bound by sentiments of honor and patriotism to administer it with discretion, earnestness and fidelity.

Mr. Welsh expressed himself as follows, with respect to the financial aspect of the Exhibition :

The expectations I held out to the public have in every respect been realized except one—I thought we should have 10,000,000 visitors, and we have had only 8,000,000. The difference is attributable to three causes: first, the indisposition of people throughout the country to believe we would open the fair on the 10th of May; second, to the tardiness of the railroads in realizing the necessity of bringing their rates within the demands of the public; and third, to the extraordinary spell of hot weather which began in June and lasted the whole summer through. The reports in the newspapers

that the Exhibition could not possibly be got ready on the day advertised for opening deprived us of the attendance we expected during the first month, and then the hot spell and the high railroad fares kept people away until September.

My calculations of the outlay required up to the opening, sub-



LIBERIAN COFFEE DISPLAY, EXHIBITED IN AGRICULTURAL
HALL.

mitted to Congress last winter, proved accurate almost to a dollar, and my estimates of the running expenses have been closely realized. We have a surplus of about \$2,000,000. The total stock subscriptions amounted to \$2,400,000. So we shall be able to pay 80 cents on the dollar to the stockholders, if we are not required

to pay back the million and a half appropriated by Congress. This is a question which the courts must settle. The English of the act of Congress gives the stockholders the whole of their money back before the government can claim anything, and the Senate understood it so; but Mr. Springer, the mover of the amendment to the bill in the House, did not. I learn that a resolution will be introduced by a member next winter, directing the Attorney-General to take steps to prevent us from paying anything to the stockholders until the United States is reimbursed. Congress ought, instead of adopting such a resolution, to pass one thanking the managers of the Exhibition, and exempting us from all demands on the part of the government. We have been celebrating the birthday of the nation. The government refused to appropriate anything for the purpose until the success of the movement was assured. I cannot believe that it will now step in and grab all the assets, and thus throw the whole expense upon its citizens who were patriotic enough to subscribe to the great enterprise.

We shall be able to close up our affairs by the 1st of January if this feature of the disposition of the surplus is settled before that time. All the buildings will be off our hands on the 1st of December. Memorial Hall remains as a monument of the Centennial year. Machinery Hall and Horticultural Hall are the property of the city of Philadelphia, and will be retained, the latter as an embellishment of the Park, and the former for festivals, celebrations, and the fairs of the Franklin Institute. The Main Building will probably be bought by the Permanent Exhibition Company, recently organized here, and if so will be preserved. The Art Annex, Shoe and Leather Building, Carriage Annex, Judges' Hall, Agricultural Hall, Commission offices, etc., will be sold at auction and removed by the purchasers. The State Buildings will also be sold, and all the foreign structures, so far as I know, except the British house, which has been presented to the city. The restaurants and other business structures will be speedily pulled down. The amount received for concessions has not varied from my original estimate of \$500,000. We are likely to close all the business growing out of concessions and contracts without disputes and without a single lawsuit.

Mr. John Sartain, Chief of the Bureau of Art, said :

I consider the Art Exhibit, as a whole, a remarkable success,

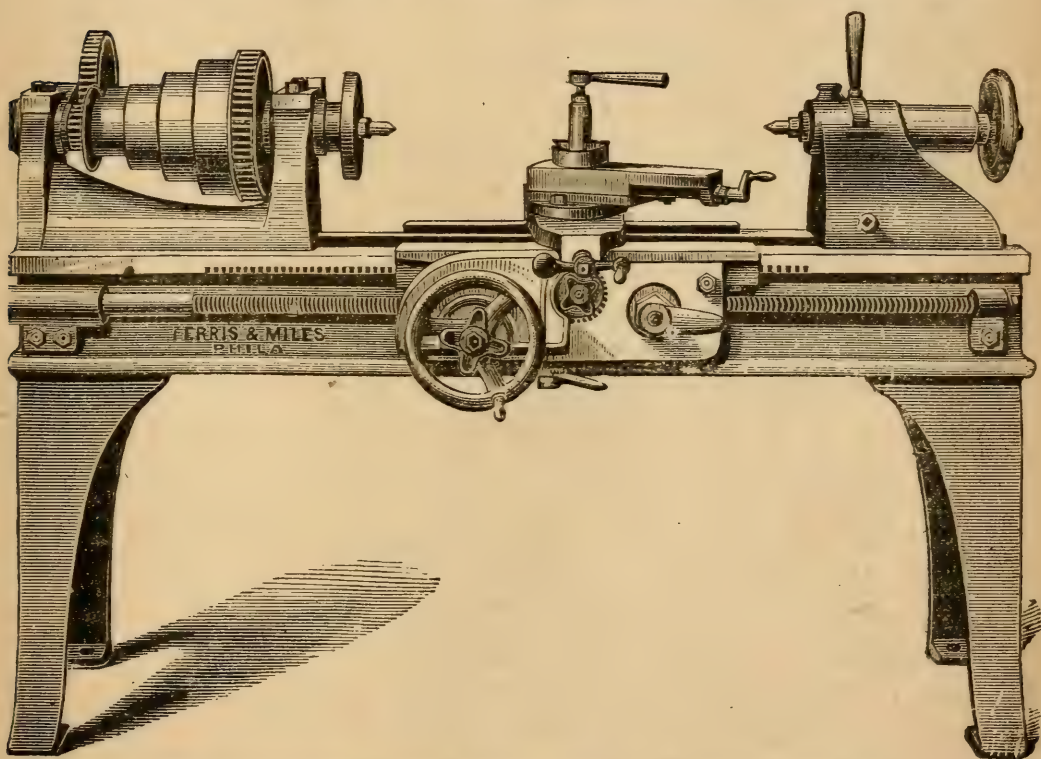
and believe it compared favorably with the displays at previous World's Fairs. France and Germany did not send their best works, but England made a most remarkable contribution, twice as large as she sent to Paris in 1867, and three times as large as her collection at Vienna in 1873. The great merit of the English pictures was owing to the fact that they came from the private galleries of gentlemen owning fine works. The Netherlands exhibit was good, and so were those of Belgium, Sweden, and Spain. It was altogether an aggregation of extraordinary talent. The Italians sent too many copies of old masters, but among their pictures were some of first-rate landscapes. Nothing in the whole Exhibition attracted so much attention as the Italian statuary. The Art Galleries were at all times the most crowded part of the fair, and the rooms containing these statues were the most crowded portions of the galleries. The Italians, Mr. Sartain says, have struck out a new field in sculpture, and have successfully treated in marble subjects heretofore confined to canvas—scenes from domestic life. Their execution is wonderful, and whatever the critics may say, the popular instinct recognizes and approves the truthfulness to nature manifested in these works.

Captain Albert, Chief of the Bureau of Machinery, said :

It is scarcely necessary for me to speak of the general success of the Exhibition in my department, as everybody knows that it has been very successful. The machinery employed in our various industries was thoroughly represented in almost every respect except that of marine engineering and shipbuilding, which important interest, owing to the decline of American commerce, is not in as prosperous a condition as it should be. The number of exhibitors of machinery was more than double the number at the Vienna Exhibition, the only previous one which had a separate hall devoted to this department. The exhibitors, as a rule, were very much pleased. The majority of them have been reimbursed. Large sales of machinery have been made, both to foreign and native customers. A number of foreign machines have been sold and will remain in this country. Machinery Hall cost less than the sum appropriated for its erection. It was the settled policy of the Commission to encourage the exhibition of processes of manufacture, and this led to the granting of permission to exhibitors to sell the products of such work, a percentage of the proceeds being

paid to the Board of Finance. During the last three months a sum was realized in this way sufficient to pay all the expenses of the Machinery Department for that time.

The Corliss engine and shafting worked during the whole time of the Exhibition without any mishap whatever, never stopping from any disarrangement, and no accident has happened to any person from machinery under the control of the Bureau. To drive all the machinery in the Exhibition 4,400 horse-power was required, and this was supplied from the boilers through three-fourths of a mile of steam pipe, varying in diameter from two to fifteen inches. This



SCREW-CUTTING LATHE, EXHIBITED IN MACHINERY HALL.

power was communicated by one mile of shafting. The amount of coal used daily was from twenty-five to thirty tons. The Bureau has conducted the largest and most comprehensive tests of steam-engines, water-wheels, and steam-boilers that have ever been known, as well as trials of various smaller machines and apparatus. To show the extent of this work it may be stated that twenty-three water-wheels, belonging to eighteen different manufacturers, have been tested, the whole apparatus for the purpose being supplied by the Commission. Trials have also been made of fifteen different boilers and about a dozen fire-engines.

Among the important American machines of recent invention shown were those for cloth-cutting, hat making, envelope making, stone-cutting, and for ornamenting in stone. Much European machinery of special interest and merit was exhibited. Among this may be mentioned machines for jute-making and for tobacco-twisting, and a sugar mill from Great Britain; Krupp's exhibit of ordnance and heavy marine forging, and Schlickeysen's brick-making machinery from Germany; wood-working machinery and a lithographic press from France, and mining machinery from Belgium. Russia had a fine exhibit from beginning to end, and that of Sweden was also excellent throughout. The most interesting part of Brazil's display in this department was illustrative of silk production. The Canadian machinery was various and good.

Mr. Burnett Landreth, Chief of the Department of Agriculture, expressed great satisfaction with the general results of his branch of the Exhibition. He said:

No previous international exhibition ever had a separate department for the products and implements of farming, and the marked success of the experiment here would, he thought, cause it to be copied in future fairs. There was an exceedingly good show of American agricultural machinery. A good deal of progress in simplifying and improving the construction of mowers and reapers was displayed. The presiding judge of this group, an Englishman, considered a hay-loading machine as the most important of the new inventions shown. None of the foreign countries exhibited much worth considering in the way of machinery and implements except Canada. England might have done so, but was deterred by the want of a market in this country. The show of grains and seeds in the American section was very good, and several foreign countries were well represented in this line. Oregon excelled all competitors in the quality of her grains. Iowa, Nebraska and Michigan sent the best fruits. There was a fine display of tobacco, and a remarkably extensive one of wines, in which Portugal, Spain, France, and our own country were prominent. The exhibit of wool and cotton was unfortunately scanty and defective. The live-stock show did not meet expectation as far as the quantity of stock displayed was concerned, but the quality was superior to anything ever seen in the United States. The poultry show was exception-

ally good and was the largest ever held in this country, while the display of pigeons was never equalled in the world.

Among the foreign countries, all things considered, Canada made the best show, because she had both implements and products. Of products alone Brazil had the most complete and best arranged exhibit. The special exhibit of the brewing industry was a notably creditable feature of the Agricultural Department, and the butter and cheese show was also praiseworthy. The exhibitors of agricultural machinery were very successful in making sale to foreign countries—Brazil, the Argentine Republic, Japan, Australia and the Cape of Good Hope being large purchasers.

Mr. Charles H. Miller, Chief of the Department of Horticulture, states:

I am convinced that the exhibition in that department has led to very important



results. At no previous World's Fair was there a separate department devoted to Horticulture, but the innovation has been very satisfactory in its effects. The horticulturists of the delegation of French artisans who visited the Centennial Exhibition wrote a letter on their return highly praising the exhibit here, and it has been determined to have a horticultural department in the exhibition at Paris in 1878. Besides the numerous displays of specialties by Americans, many foreign collections of importance were sent to the Exhibition, and the space reserved by the Commission was so used as to give the whole great attraction as a display of decorative gardening. Multitudes of visitors have been delighted with its beauty, and many of them have learned to appreciate for the first time the results of the labors of florists and horticulturists. This awakening of popular interest and training of taste in horticultural matters cannot fail to be of incalculable benefit. Exhibitors are well satisfied, and many horticulturists who made no display now regret that they did not do so. A great many foreigners have expressed their admiration of the Exhibition in this department, and many of the foreign exhibitors have contributed valuable collections to the Park Commissioners, to form part of the exhibition which will be maintained in Horticultural Hall. Measures are now being taken to organize a botanic garden and arboretum in Fairmount Park, and an excellent nucleus exists in the foreign and American collections that would be given to aid the undertaking.

General Francis A. Walker, Chief of the Bureau of Awards, said :

The so-called American system of awards has suffered more or less disadvantage in its first trial at the International Exhibition of 1876, first, by reason of its novelty, and secondly, from the want of early and adequate preparation for the work of adjudication. The trial made at this Exhibition has not disclosed any inherent defects in the system, but it has shown the necessity of providing certain conditions and imposing certain limitations which seem not to have been anticipated. Among these I may indicate a restriction upon the awards to be given, having reference to the importance of the exhibits. Petty exhibits, especially those which are not of a commercial character, cannot be advantageously dealt with under the

American system. If an exhibitor who presents a can of maple sugar or two or three bottles of wine, or a piece of hand-worked embroidery made for the purposes of the Exhibition, is to receive an award purely upon the merit of the individual articles shown, without reference either to the extent of the exhibition made or to the extent and importance of his production, the reports of the judges will be so multiplied and their subjects will become so trivial as to impair, more or less, the dignity and authority of the reports made upon exhibits of greater importance.

The want of this limitation has been felt at the present Exhibition, and as the result we find the number of awards swollen by the recognition of a great number of articles of unquestioned merit, but of merit in a very small way.

This excess inevitably tends to diminish the proper effect of those awards which are given to exhibits of great commercial value.

The want of early and adequate preparation for the work of adjudication has been severely felt through the whole progress of the Exhibition. The classification of articles as arranged for the



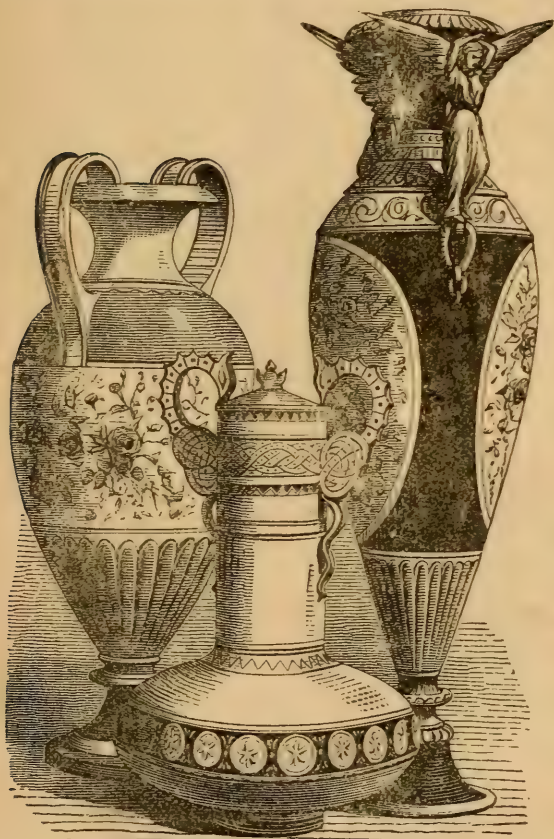
CHINA VASES.

judges' work omitted some of the most important groups of products in the Exhibition, including tea, coffee, tobacco, spices, and the whole line of cereals, rendering it necessary to assign, as the exigencies of the situation required, the omitted products to groups which were perhaps already overburdened with the number and variety of objects submitted to the judges' attention. The obscurity of some of the lines of classification adopted, moreover, in-

creased greatly the liability, always in a degree existing, of articles falling through between contiguous but not absolutely coterminous groups; of even more serious consequence was the delay in sending out blank forms to be filled up by exhibitors with the necessary information for the judges. These forms were not prepared and issued in season to reach more than a very small fraction of the foreign exhibitors, and in the result it was found that a very large proportion even of the native exhibitors had been supplied either

not at all, or so late as to render their replies unavailable for the purposes of the judges, who were therefore left, in the incompleteness of the official catalogue, to find out for themselves both the location of the exhibits and the special advantages claimed by their producers.

In spite of the defects noted, the American system of awards is, I think, fully acknowledged to be a success by all who have seen enough of its workings to be able to judge of the results; and I think it will be generally approved both at home and abroad, when the reports of the judges in the several groups shall be



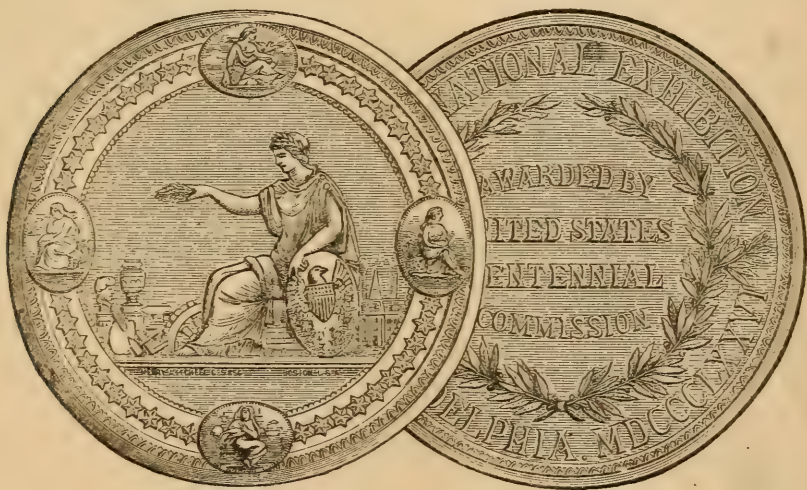
CHINA VASES.

published. The central idea, as you are aware, is to give information to the body of would-be purchasers and to the general public through a series of discriminating and descriptive reports, instead of making use of tokens like graded medals which convey practically no information.

Under the present system, the medal, uniform in all cases as to size, design and material, becomes only a token that the exhibitor

has received an award. The question what the award is is only answered by the report of the examining judge, which is expected to set forth the elements of merit, and, as far as practicable, the degree of merit. In other words, the report of the judge answers the question which Socrates used to ask of his antagonists in debate when they declared a thing to be good—good for what? Its adaptation to the uses designed, its economy, its efficiency, and every other recognized advantage of a product, come thus within the scope of the report. The medal simply declares that an article is good; the report tells what it is good for, and how good.

This system also enables us to avoid forcing comparison between objects having more or less different uses, though falling under the



CENTENNIAL AWARD MEDAL.

same class. In general it is true, I think, that a judge should be able to say something better of an article or product than that it is the best. An article may be the best of its kind and yet very poor; and of many very good things it may be impossible to say which is the best. Hence, the Bureau of Awards has steadily discouraged the use of superlatives in the judges' reports.

The reports made under this system are nearly all in press, and will be issued in pamphlets by groups as soon as practicable, all probably within the course of two or three weeks. In general the judges have very clearly apprehended and strongly held to this plan of awards, and the reports as rendered will do great credit to the Exhibition, as constituting a part of its permanent literature, as


well as convey much practical information of commercial value. Of course, when a judge is to report upon an exhibit of canned peas, not a great deal can be said except that the peas were well-selected and the work of canning well done; but in regard to the many exhibits of an important character, highly discriminating and often fully descriptive reports have been presented. Whether in a few lines or in two or three pages, the characteristic features of each exhibit are stated.

Of the judges selected for this difficult and delicate duty it certainly cannot be necessary for me to speak in terms of praise. Many of them are among the first savants of this country and Europe, while others, not so widely known, are experts of large experience and high authority in their own departments. They have labored with astonishing zeal and energy. They have, speaking generally, overcome not only the intrinsic difficulties of the work of adjudication, but the disadvantages which have attended its first adoption here in Philadelphia, with rare patience and pains. I believe that substantial justice has been done as fully as can be expected in human affairs, and that the results as they appear will justify the system and do credit to its author, Mr. Beckwith, and to the judges who have been appointed to carry it out.


THE END.

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OF MACHINERY HALL, the grand temple of the Mechanic Arts; of the great Corliss Engine, and the thousands of machines which exhibit the mechanical industries of the world.

OF MEMORIAL HALL, the beautiful Art Gallery, with its thousands of Paintings, Statues, Bronzes, etc.; the most superb Art Collection ever seen in any Exhibition.

OF AGRICULTURAL HALL, in which is made the most complete display of the agricultural systems of the various nations of the world. This is the grand original feature of our Exhibition, and is a source of the deepest interest to all who visit it. To the farmer, the account of the superb display in this building is worth the price of the whole book.

OF HORTICULTURAL HALL, the fairy-like palace in which the flowers of the world are to be seen; and of the beautiful landscape garden which surrounds it.

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OF THE WOMAN'S PAVILION, with its beautiful collections of the work of woman in the various occupations in which her skill and patience have won her success. This department of the Exhibition cannot fail to interest the women of America.

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